April 24, 1998

TO: Potential SIM Proposers

FROM: Jeff Cornish
Contract Negotiator
Jet Propulsion Laboratory

You are hereby notified that JPL is releasing the draft Request for Proposal (RFP) for the "Space Interferometry Mission (SIM) Industry Partner" on the SIM web site home page. Comments are requested from industry and should be submitted to the JPL negotiator in writing by close of business on May 1, 1998.

JPL requests industry comments on any aspect of the RFP (e.g., technical requirements, evaluation criteria, draft specimen contract, exhibits, and applicable documents).

In addition to any general comments, JPL requests comments in the following specific areas:

1. Is the 30-day proposal response time acceptable?
2. Are the mandatory page limitations acceptable?
3. Is the incentive fee structure acceptable?
4. If you anticipate providing classified documentation in order to submit a complete proposal, please notify JPL as soon as possible.

The draft RFP documents are provided for information purposes only. The final RFP shall be JPL's only official document for this procurement.

DRAFT

May XX, 1998

Attention: All Prospective Proposers

Subject: Request For Proposal (RFP) No. K04-X-XXXX-XXX

Enclosed is the RFP for industry participation in the Formulation and Implementation (including operations) phases of the Space Interferometry Mission (SIM) procurement. The objective of this RFP is to select a partner for each of two work packages who will work together with the Jet Propulsion Laboratory (JPL) in a teaming environment to design, manufacture, integrate and test, and operate the Interferometer Instrument and the Spacecraft. JPL cordially invites your organization to submit a written proposal in conformance with the RFP instructions. This RFP supercedes any previous written or verbal information provided by JPL and is the only official document for this procurement.

SIM is a cost capped mission. All work must be performed within the cost cap and funding profile set forth in the Cost Proposal Instructions contained in this RFP.

The contract for each of these work packages, structured as a Cost Plus Incentive Fee for passing the Non-Advocate Review (NAR), will be issued for the Formulation Phase of the Instrument and the Spacecraft. This contract will include an unpriced option to negotiate a follow-on contract on a Cost Plus Incentive/Award Fee basis for the Instrument and Spacecraft Implementation Phase. It is JPL's intent to exercise the option by Spring 2001 provided that: (1) Implementation Phase funds are approved and released by the Government; (2) the Contractor(s) Formulation Phase activities demonstrate the technical and programmatic capability to execute the Implementation Phase of the SIM within cost, technical, and schedule constraints; and (3) the Contractor(s) have demonstrated the capability to perform within a teaming environment during the Formulation Phase and have performed satisfactorily for the previous work effort.

JPL has provided a Web site at: http://sim.jpl.nasa.gov/sim/ which contains the RFP, applicable documents and a continuously updated set of all questions and answers.

The due date and time for receipt of proposals at JPL is no later than **June XX, 1998, at 3:00 P.M. PST.** To facilitate evaluation of your proposal, you are requested to submit Volume III, Past Performance, by May XX, 1998.

As a further convenience to JPL, please notify the undersigned by **May XX, 1998**, as to whether or not you plan to submit a proposal. If you choose not to submit a proposal, JPL would appreciate a brief explanation of the factors that influenced your "no bid" decision.

All questions and correspondence related to this procurement should be directed to the undersigned.

DRAFT

Sincerely,

Jeff Cornish
Member of Acquisition Staff
Mail Stop 201-203
Phone: (818) 393-1945
FAX: (818) 393-9372
Email: Jeffrey.J.Cornish@jpl.nasa.gov

JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY

REQUEST FOR PROPOSAL

REQUEST FOR PROPOSAL NO. **KO4-4-7586-945**

FOR

SPACE Interferometry Mission (SIM))
INDUSTRY TEAM M EMBER(S)

PROPOSALS TO BE RECEIVED AT JPL NO LATER THAN

Date: **TBD**

Local Time: **3:00 P.M.**

COMMUNICATIONS IN REFERENCE TO THIS RFP

It is requested that any communication in reference to this RFP be in writing and directed to the attention of:

Name: JEFF CORNISH Mail Station: 201-203

Title: Contract Negotiator Specialist

California Institute of Technology
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109-8099

Date of Issuance: TBD

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DRAFT

I. INTRODUCTION

A. INTRODUCTION

1. BACKGROUND

NASA's Origins Program is a vigorous investigation of the evolution of the universe from the Big Bang through the formation of planets and the development of life. The Origins Program will use new technology to examine the formation of galaxies in the early universe, the formation of stars, and the formation of the chemical elements. It also includes searches for Earth - like planets around nearby stars, and the spectroscopic examination of those planets for evidence of life.

The Space Interferometry Mission (SIM) is an astrophysics mission under development by NASA in support of the Origins Program. SIM will perform a full sky survey of stars, search for other planetary systems, and serve as a technology precursor to the Terrestrial Planet Finder (TPF) Mission. SIM is a space-based interferometric flight system consisting of an interferometer instrument system, a spacecraft to support engineering functions, and a precision structure supporting the interferometer instrument.

2. INTEGRATED PROJECT TEAM APPROACH

The Jet Propulsion laboratory (JPL) desires to develop SIM under a teaming arrangement between JPL and a contractor for each of two work packages. Work Package 1 (WP1) covers the Formulation and Implementation Phases leading to successful delivery of an Interferometer Instrument System (IIS). The contractor selected for the IIS will be known as the Interferometer Industry Partner (IIP). Work Package 2 (WP2) covers the Formulation and Implementation Phases leading to a successful delivery of the Precision Structure Subsystem (PSS); a spacecraft for engineering functions; Assembly, Test, and Launch Operations (ATLO). The contractor selected for WP2 will be known as the Spacecraft Industry Partner (SIP). Both work packages include operations support for the life of the mission.

The work environment is conceived of as a badgeless environment with team members from JPL, IIP, and SIP. The objective of the combined team will be to develop the most cost effective approach to the development of SIM This will require innovation from all team members and flexibility in defining and moving interfaces and components to accomplish SIM objectives within resources available.

3. SIM PROJECT PHASES

The SIM project will be in two phases. The first phase is the Formulation phase, during which the technical and management teams will work on the SIM system design and implementation plans.

The technical teams will evolve a SIM system definition which will include allocation of functions and interfaces followed by a more expanded definition and preliminary

design effort. System design trades will be performed in all pertinent technical and financial areas. The management and technical teams will work together to produce the most cost effective SIM concept possible. Near the end of the Formulation Phase, a Preliminary Design Review (PDR) and Non-Advocate Review (NAR) and their follow-ups will be held. The Formulation Phase ends at the start of the Implementation Phase.

During the Formulation Phase the responsibility for implementation of the design by specific team members will be further established. During the Implementation Phase the preliminary design identified in the Formulation Phase will be refined to a detailed design. At completion of the detailed design activity, Critical Design Reviews (CDRs) will be conducted for the subsystems and ultimately the systems. The fabrication, assembly, test, and launch of the flight systems and their supporting ground systems will begin as these CDRs are successfully completed. The Implementation Phase ends upon completion of mission operations.

SIM PROJECT MILESTONES

Date	**Title**	**Comments**
10/30/97	**Formulation Phase**	**Approval for Formulation Phase**
03/29/01	NAR/PDR	
07/02/01	**Implementation Phase**	**Approval for Implementation Phase**
04/01/02	Critical Design Review (CDR)	
06/15/05	Launch	
07/15/10	**End of Mission**	

4. RFP STRUCTURE

This RFP is structured to solicit proposals from industry for two work packages. Source selection will be based on the optimum combination of WP1 and WP2 proposals and may result in the selection of one (1) or two (2) contractors. The source selection process accommodates proposals as follows:

a. A single contractor proposes on the WP1 alone or the WP2 alone.

b. A single contractor submits a proposal for the WP1 and WP2 with the intent of being selected for one **or** the other but not both.

c. A single company proposes on both the WP1 and WP2 with the intention of being selected for both work packages. This contractor must submit stand-alone proposals (Volume I, II, and III) for each area and a single supplemental volume (Volume IV) showing the technical, management and cost effects of combining the proposed areas of responsibility. JPL reserves the right to select one contractor for both work packages.

Since SIM is a cost capped project, it is extremely important to select team members who can perform their tasks within their negotiated cost estimate. Therefore, recent past performance of the proposing organization will be evaluated and used as an other factor in the overall evaluation.

II. PROPOSAL INSTRUCTIONS

A. GENERAL

1. INTRODUCTION

The following provides general instructions and information regarding preparation of your proposal(s) in response to this RFP.

2. CONTRACT REQUIREMENT

The basic contract(s) will cover the work effort set forth in Table of Contents, Part III, Specimen Contract, Article 1, Statement(s) of Work. The contract(s) is for the Formulation Phase and will include an option to negotiate the Implementation Phase effort upon successful completion of NAR/PDR.

3. PACKAGING AND SUBMITTING YOUR PROPOSAL

a. Organization and Format

(1) Each stand-alone proposal for the IIS and/or S/C, area of responsibility should be organized as closely as practicable to the format and sequence indicated in these proposal instructions, and must be submitted as outlined below.

Volume No.	Title	Page Limit Per Stand-Alone	Number Of Copies
Volume I	Technical-Management	75	12
Volume II	Cost	No Limit	12
Volume III	Past Performance	2 pages per contract	12

A single Supplemental Volume (Volume IV) showing the Technical-Management and Cost effects of combining the proposed areas of responsibility may be submitted. If you propose for both areas and submit a Volume IV you must provide a discussion on the combination of the two work packages.

Volume No.	Title	Page Limit	Number Of Copies
Volume IV	Tech-Mgmt Proposal Adjustments	30	12
	Cost Adjustments	No limit	

Please provide one copy of <u>each volume</u> unbound and reproducible. Also provide a .pdf electronic file.

Please note that JPL has assigned a **<u>mandatory</u>** page limitation to the individual proposal volumes. Technical-Management and Cost information MUST be submitted within its respective volume. Any information not pertaining to a particular volume will be excluded from evaluation (e.g. management information included in the cost volume will not be evaluated etc.).

(2) For the purpose of the mandatory page limitation, the following rules apply:

(a) All text must be typed on 8 1/2" x 11" paper.

(b) Drawings and/or photographs will be considered as part of the page count. Fold out drawings will be counted proportionally as additional pages (e.g. 11" x 17" will be counted as two pages, etc.).

(c) A minimum of single spacing is required. Page margins shall be no less than 1/2" inch at the top, bottom, and sides.

(d) Type font size shall be <u>no smaller</u> than 12 point character height.

(e) Any pages which exceed the above noted limitations will be removed from the proposal and will not be evaluated. A page is defined as each face of a piece of paper containing information.

(3) Unnecessarily elaborate brochures or presentation layouts, other than those sufficient to present a complete and effective proposal, are not desired. Except when specifically requested, mockups, models, samples, hardware, or software of any kind must not be furnished and will not be considered.

(4) JPL reserves the right to retain all proposal information submitted in response to this RFP.

(5) Within each volume of your proposal(s), the authors of each major portion must be identified, and their present organizational position and company affiliation stated.

(6) Pages for each volume shall be numbered sequentially beginning with the title page, including all pages contained in the volume. Each copy of each volume should be numbered on the outside cover; for example, "IIS, Volume I, copy 1 of 12."

b. Address and Identification

To help ensure timely receipt and processing of your proposal, please affix the enclosed yellow adhesive label to the envelope/container containing the complete original copy of your proposal. (NOTE: The yellow label is JPL's notification that the package you send is a proposal.) In case the mailing label is lost, address your proposal on a similar yellow label containing JPL's address, the name of the individual designated on the cover page of this RFP (including the mail stop) and the RFP number. All proposal envelopes/containers must be identified with the RFP number that appears on the RFP cover page.

c. Hand-Carried Proposals

Hand-carried proposals must be delivered to the California Institute of Technology/Jet Propulsion Laboratory (JPL) Visitor Control Center, at 4800 Oak Grove Drive, Pasadena, Building 249, where it will be received and time-stamped. Visitor Control is open to receive proposals only on working weekdays, between 7:30 a.m. and 4:30 p.m. (proposals are due at the time and date stated on the cover of this RFP).

4. GENERAL INFORMATION

a. Proposal Preparation and Related Costs

This RFP does not commit JPL or the Government of the United States to pay any costs incurred in submitting your proposal, making studies or designs for preparing the proposal or in procuring or subcontracting for services or supplies related to the proposal

b. Data

If the proposal contains data that either you or your subcontractors do not wish to be disclosed for any purpose other than proposal evaluation, you must mark the cover sheet of each volume containing such information with the legend below:

"Data contained in pages____ of this proposal furnished in connection with RFP No. K04-4-7586-945 shall not be used or disclosed, except for evaluation purposes, provided that if a contract is awarded to this offeror as a result of or in connection with the submission of this proposal, JPL and the Government shall have the right to use or disclose this data to the extent provided in the contract. This restriction does not limit JPL's right to use or disclose any data obtained from another source without restriction."

c. Request for Clarification/RFP Addenda

During the proposal preparation period, all requests for clarification and or additional information, must be submitted in writing to the individual referenced by "Attention:" on the cover page of this RFP. When appropriate, responses to inquiries, as well as any JPL initiated changes, will be provided to all prospective proposers in writing as addenda to the RFP. (**NOTE: You must include acknowledgment to all addenda on your Acknowledgment to this RFP [Attachment A-1].)**

d. Early Submittal of Volume III

JPL plans to select contractor(s) not later than **TBD**. To facilitate this schedule, JPL requests that you submit Volume III - Past Performance by **TBD**.

5. LATE PROPOSALS

Any proposal, portion of a proposal, or unrequested proposal revision received at JPL after the time and date specified on the cover page of this RFP is late. Any volume of a proposal received after the time and date specified will cause the entire proposal to be late. Late proposals will not be considered for award, except under the following circumstances:

a. JPL determines that the late receipt was due solely to a delay by the U.S. postal service for which the offeror was not responsible. Timely postmark or receipt of registered or certified mail establishing the time of deposit must be evidenced.

b. JPL determines that the proposal was late due solely to mishandling by JPL after receipt at JPL, provided that the timely receipt at JPL is evidenced.

c. No acceptable proposals are received in a timely manner.

6. FOLLOW-ON PROCUREMENT OPTION

The Specimen Contract provides the option(s) for JPL to negotiate a follow-on procurement for the Implementation Phase of the SIM WP1 and WP2 with the selected contractor(s). It is JPL's intent to execute the option(s) by **TBD** provided that; (1) Implementation Phase funds are approved and released by the Government; (2) The Contractor(s) Formulation Phase activities demonstrates the technical and programmatic capability to execute the Implementation Phase of the SIM within program technical, cost, and schedule constraints; and (3) The Contractor has demonstrated the capability to perform within a teaming relationship in the Formulation Phase and has performed satisfactorily during the previous work effort.

7. SOURCE EVALUATION AND SELECTION PROCESS

a. Selection Approach

JPL will conduct an evaluation that recognizes the fixed budget constraints that the SIM project is operating under, and, at the same time, attempts to maximize the science return of the mission. The goal of this process is to select a qualified, flexible, high-performing team to conduct the best SIM mission for the money available.

b. Cost Constraint

The total cost for the SIM Formulation and Implementation Phases is capped at $**TBD** (real year dollars). Of the total the project will hold a reserve of $**TBD** (~TBD%) and has established a preliminary allocation of $**TBD** for WP1 and WP2. The remaining $**TBD** is among, science, project management, and the development of the ground and mission operations system.

Because the SIM project must be accomplished in a cost-constrained environment, proposers are advised that anticipated funding to the contractor(s) for the , WP1 and WP2, in real year dollars, including fee, is about $**TBD** for Formulation Phase and about $**TBD** for the Implementation Phase. These amounts do not represent a mandatory cost criterion; however, proposers are strongly encouraged to submit technical-management approaches that reflect a "design/implementation-to-cost" philosophy with this budget in mind.

c. Source Selection Process

The source selection process emphasizes three major areas: (i) evaluation of technical-management proposals, (ii) consideration of cost, and (iii) consideration of other factors. The steps that are followed during the source selection process are described below:

(1) Applicable portions of the proposals will be evaluated against criteria established in Section 8. Proposed cost, including the estimated cost for Formulation and Implementation Phases of SIM will be analyzed, and a probable cost developed.

(2) Results of the technical-management proposal evaluations plus JPL's initial consideration of cost and other factors are used to determine which proposers are within the competitive range (i.e., those having a reasonable chance of being selected for contract award). Proposals determined not to be within the competitive range are eliminated from further consideration, and the proposers are notified accordingly.

(3) JPL may make source selection after the initial proposal evaluation or may conduct site visits with the proposers determined to be within the competitive range. If oral discussions are conducted an evaluation of proposed facilities will be conducted with the proposers. The purpose of the site visit is to assist the evaluators in fully understanding each proposal by:

(a) Clarifying those aspects of each proposal which contain omissions, ambiguities and uncertainties;

(b) Verifying and identifying strengths and weaknesses which could affect work performance;

(c) Assessing the credibility of the proposed cost estimate and developing a probable cost;

(d) Assessing the proposed personnel and the proposer's capabilities for performing the work;

(e) Verifying past performance deficiencies, and

(f) Assessing the proposers facilities and their capabilities for performing the work.

(4) The initial findings are then reviewed and may be revised to incorporate the results of the site visits.

d. Selecting the Contractor(s) for Negotiation

The final findings are used in selecting for negotiation the contractor(s) determined to be capable of satisfying the RFP objectives and constraints to JPL's best advantage. In arriving at this selection decision, the findings resulting from the probable cost assessment, technical-management evaluation, and consideration of other factors are all used.

e. JPL's Proposal Acceptance and Negotiation Rights

JPL reserves the right to accept or reject any or all proposals and to negotiate with any source that JPL considers to be in its best interest.

8. COST AND EVALUATION CRITERIA, AND OTHER FACTORS

a. Cost Criteria

To assess the credibility of the proposed cost for the Formulation and Implementation Phases, JPL will conduct a thorough probable cost assessment of the proposer's ability to meet proposed technical-management solutions within the fixed budget constraints. Unsupported cost elements and/or overly optimistic cost estimates may significantly affect the source selection(s).

b. Evaluation Criteria

The technical and management proposals for the WP1 and WP2 (Volume I) will be evaluated independently using the evaluation criteria and factors given below. Each proposal will be evaluated in four (4) technical-management areas: 1) **Management to Constrained Resources**, 2) **Technical Approach and Innovation**, 3) **Project Organization and interaction of project teams**, and 4) **Development Approach and Manufacturing Ability for Implementation Phase**. You should recognize that ability to manage to cost as demonstrated by your past performance is considered important. The evaluation criteria and weighting are listed below; factors shown under the criteria are not weighted for evaluation purposes and are not listed in any particular order.

VOLUME I INTERFEROMETER INSTRUMENT SYSTEM (IIS)

(1) Management to Constrained Resources - Criterion 4 (400 points)

The degree to which the proposed management to cost approach enables the development of SIM within the project cost constraints.

Factors to be considered are:

(a) Managing a Cost Constrained Project

- Approach to managing a cost constrained project and how cost growth pressures would be managed.
- Implement-to-cost approach and how to manage performance-cost trades in a Teaming environment
- Approach to cost reserve

(b) Schedule

- Network schedule milestones, products, slack critical path and value added metrics
- Phasing of individual tasks and subtasks
- Method of schedule management, including planning and maintenance
- Approach to schedule coordination with the project team members

(c) Risk Reduction

- Technical, cost, and schedule risk reduction features of proposed approach

(d) Reporting and Documentation

- Reporting plan including management tools, status report approach and metrics
- Documentation plan and document approval

(2) Technical Approach and Innovation - Criterion 2 (200 points)

The degree to which the proposed IIS technical approach and innovative concepts and related experience meet the requirements implied by the reference design described in Exhibit I of the Specimen Contract.

Factors to be considered are:

(a) IIS Design

- Key features of design and comparison to the reference design in Exhibit 1 of Specimen Contract
- Key areas of technical risk, trade studies and risk mitigation strategies regarding system test bed 3 (STB-3), or other technology testbeds
- IIS integration and test approach, including integration with the precision structure subsystem (PSS)

(b) IIS Capabilities

- Nominal optical performance
- In-air ground performance

(c) Innovative Features

- Innovative features of design/approach
- Mass and/or cost savings
- Ease of assembly and testability

(d) Related Experience

-Technical interaction teaming experience with partial collocation.
- Performance and applicability of the related experience to your proposed design.

(3) Project Organization and Interaction of Project Teams-Criterion 3 (200 points)

The degree to which the project organization and interactions of the teams, defined in Exhibit 8, would result in a successful development of the SIM.

Factors to be considered are:

(a) Teaming Interactions

- Approach for participation in a multi-organization team and management tools
- Formulation Phase implementation plan and tasks to be performed

- Critique of strawman Formulation Phase activities described in Exhibit 8 of the Specimen Contract
- Teaming experience

(b) Project Organization

- Proposed Formulation Phase and Implementation Phases project organization and relation to internal supporting organizations
- Qualifications of key personnel and their commitment/availability and incentives if any to remain on this project
- Authority of proposed personnel and their ability to resolve problems

(c) Work Breakdown Structure (WBS)

- Logic of the WBS
- Relationship between the proposed Project organization and WBS

(4) Development Approach and Manufacturing Ability for Implementation Phase - Criterion 4 (200 points)

The degree to which the Implementation Phase development and manufacturing approach would result in the successful implementation of the SIM design.

Factors to be considered are:

(a) Implementation

- Implementation of the IIS
- Technical and cost risk reduction features

(b) Interfaces, Requirements and Configuration

-Approach to managing interfaces, requirements and configuration during Formulation and Implementation Phases
-Interface assumptions of the IIS to the PSS, S/C and ground system.

(c) Manufacturing, Assembly and Test

- Manufacturing, assembly and test approach
- IIS performance verification approach

- Facilities, processes and test equipment to be used for fabrication, assembly, test and verification of the IIS.

(d) Subcontracting Plan

-Subcontracting plan including methods of qualifying suppliers
-Plan for JPL communication/interaction with second tier subcontractors

(e) Product Assurance (Including Safety)

- Product assurance approach including approach for subcontractors
- Risk management approach under cost constraints

VOLUME I SPACECRAFT (S/C)

(1) Management to Constrained Resources - Criterion 1 (400 points),

The degree to which the proposed management to cost approach enables the development of SIM within the project cost constraints.

Factors to be considered are:

(a) Managing a Cost Constrained Project

- Approach to managing a cost constrained project and how cost growth pressures would be managed.
- Implement-to-cost approach and how to manage performance-cost trades in a teaming environment
- Approach to cost reserve

(b) Schedule

- Network schedule milestones, products, slack critical path and value added metrics
- Phasing of individual tasks and subtasks
- Method of schedule management, including planning and maintenance
- Approach to schedule coordination with other project team members

(c) Risk Reduction

- Technical, cost, and schedule risk reduction features of proposed approach

(d) Reporting and Documentation

- Reporting plan including management tools, status report approach and metrics
- Documentation Plan and document approval process

(2) Technical Approach and Innovation - Criterion 2 (200 POINTS)

The degree to which the proposed S/C technical approach and innovative concepts meet the requirements implied by the reference design described in Exhibit 1 of the Specimen Contract.

Factors to be considered are:

(a) Reference Design of the S/C, PSS, ATLO, and S/C operations

- Key features of your design and comparison to the reference design.
- Key areas of technical risk, trade studies and risk mitigation strategies including objectives of STB-3 and flight system trade studies for life cycle cost reduction.
- Integration and test approach and innovative approach to integration with the instrument.

(b) S/C and PSS Capabilities and performance and key subsystems

- PSS performance
- S/C engineering subsystems and their performance capabilities
- PSS In-air (ground) performance
- GSE performance capability required for ATLO

(c) Innovative Features

- Innovative features of design/approach
- Mass and/or cost savings
- Ease of Integration and testability
- Features which lower operations costs

(3) Project Organization and Interaction of Project Teams - Criterion 3 (200 points)

The degree to which the project organization and interaction of the teams, as defined in Exhibit 8 of the Specimen Contract, would result in a successful development of the SIM.

Factors to be considered are:

(a) Teaming interactions

- Approach for participation in a multi-organization team

- Formulation Phase implementation plan and tasks to be performed
- Critique of strawman Formulation Phase activities
- Teaming experiences, including collocation, technical interaction

(b) Project Organization

- Proposed Formulation and Implementation Phases project organization and relation to internal supporting organizations
- Qualification of key management and technical personnel and their commitment to this project
- Authority and ability of key personnel to resolve problems

(c) Work Breakdown Structure

- Logic of proposed WBS
- Relationship between the proposed project organization and the WBS

(4) Development Approach. and Manufacturing Ability, Implementation Phase - Criterion 4 (200 points)

The degree to which the Implementation Phase development and manufacturing approach would result in the successful implementation of the SIM design.

Factors to be considered are:

(a) Implementation

- Implementation of the S/C, PSS, ATLO and required S/C operations facility
- Technical and cost risk reduction features

(b) Interfaces, Requirements and Configuration

- Managing dynamic interfaces, requirements and configuration
- Interface assumptions between PSS, S/C, ATLO, S/C operations and the IIS
- Interface management approach and coordination with other teams

(c) Manufacturing, Assembly and Test

- Manufacturing, assembly and test approach
- Performance verification approach
- Facilities, processes, and test equipment used for above items

(d) Subcontracting Plan

-Subcontracting plan and approach used for qualifying subcontractors
- Plan for JPL communication/interaction with lower tier subcontractors

(e) Product Assurance (Including Safety)

- Product assurance and safety approach including subcontractors'
- Risk management approach under cost constraint
- Documentation and document approval process

9. EVALUATION APPROACH

JPL intends to select the best contractor(s) to perform the design and development of the SIM. IIS and S/C technical-management proposals which are submitted will be evaluated using the Source Evaluation process specified above. At the completion of the technical-management evaluation process stand-alone and combined proposals, with adjustments, reflecting the verifiable effect of one proposer providing a combined proposal, will be scored and evaluated.

Cost is not weighted for source selection purposes, however, cost will be considered in the selection process based on the cost constraint of $TBD for all contracts. The cost of all combinations identified above including the cost of one proposer providing more than one component will be considered in determining the contractor(s) capable of satisfying the RFP objectives and constraints to JPL's best advantage. In arriving at the selection decision, the findings resulting from the probable cost, technical-management evaluation and consideration of other factors are all used.

10. EXCEPTIONS

A large number of exceptions or one or more significant exceptions to the General Provisions and/or Additional General Provisions may make your proposal unacceptable for evaluation. You must provide a detailed explanation, including the rationale, for any exceptions you take. Proposers who submit proposals with exceptions may be selected for negotiations. However; if an agreement cannot be negotiated, your proposal may be rejected.

II. PROPOSAL INSTRUCTIONS

B. TECHNICAL - MANAGEMENT

1. INTRODUCTION

This portion of the proposal instructions sets forth the requirements to be followed in preparing Technical-Management volume(s). The Technical-Management volume(s) provides an opportunity to establish technical and management credentials for being selected as a member of the SIM Integrated Project Team (IPT). A technical and management volume should be prepared for each area of the SIM development in which you desire to participate.

In order to enable us to evaluate your suitability to join the SIM team, we ask that you propose a technical and management concept and approach that would meet the requirements that are implied by the baseline design described in Exhibit 1 of the Specimen Contract and discuss the differences and/or advantages of your technical approach compared to the baseline concept contained in Exhibit-1. We further ask that you describe your approach to the Implementation Phase activity, emphasizing your ability to be flexible in arriving at functional requirements and interface agreements in the context of cost constraints and the teaming environment described in Exhibit-8 of the Specimen Contract.

Finally, we ask that you describe how you would approach the Implementation Phase of the technical concept you propose, noting any cost and technical risk reduction features contained in your approach.

Note: The material that you present in your proposal is for evaluation purposes only. Should you be selected to join the SIM team, such selection does not necessarily imply that your concept/approach will be adopted for use in the definition, design and development of SIM.

In providing the above information your technical-management volume should be organized as outlined in Section 2, 3 or 4 below.

2. VOLUME I TECHNICAL-MANAGEMENT PROPOSAL FOR THE SIM INTERFEROMETER INSTRUMENT SYSTEM (IIS)

a. **Assumptions:** This work package includes development of the IIS, which consists of collector pods, a combiner pod, ground support equipment, and post-launch IIS operations. Also included will be support to one major technology testbed (STB3) during the Formulation phase. IIS real-time control software will be provided as Government Furnished Equipment (GFE) for integration into the IIS.

(1) Management to Constrained Resources, Criterion 1

Provide your management to cost approach as follows:

(a) Managing a Cost Constrained Project: Describe your implementation approach to managing a cost constrained project and how you would manage cost growth pressures to your baseline. Include your design/implement-to-cost approach and your method of managing performance-cost trades in a teaming environment. Provide your cost reserve approach.

(b) Schedule: Provide a network schedule with key milestones, products, schedule slack and the critical path identified. Describe the phasing of the individual tasks and subtasks as shown in your WBS. Describe your method of schedule management including schedule planning and maintenance. Discuss how you will coordinate schedules with other team members.

(c) Risk Reduction: Describe the technical, schedule and cost risk reduction features of your approach.

(d) Reporting and Documentation: Provide a reporting plan which includes your management tools and status report approach that would be used to monitor and control costs and schedule performance. Include metrics used for cost, schedule and earned value.

Provide your documentation and document approval approach. Include a discussion of your approach for the following documents: design documents, interface agreement documents, data products and as-built documents.

The reporting and documentation approaches may be consistent with your internal technical and management reporting systems.

(2) Technical Approach and Innovation, Criterion 2

Provide your technical approach and innovative concepts as follows:

(a) IIS Design: Discuss the key features of your design, and compare them to the reference design contained in Exhibit 1 of the Specimen Contract. Discuss the key areas of technical risk, trade studies, and risk mitigation strategies regarding STB-3, or other technology testbeds. Describe your integration and test approach, including integration to the S/C and PSS.

(b) IIS Capabilities: Describe nominal optical performance. Discuss "in-air" ground performance considerations.

(c) Innovative Features: Describe any innovative features of your IIS design/approach. Discuss where there may be possible mass

and/or cost savings. Discuss the ease of assembly and testability of your conceptual design.

(d) Related Experience: Describe your technical interaction teaming experiences in an environment with partial collocation. Discuss your performance, reliability and qualification experience that has been demonstrated on flight and development programs in the past, and describe how that experience is relevant to the performance and applicability of your proposed design for the SIM project.

(3) Project Organization and Interaction of Project Teams--Criterion 3

Provide your project organization and teaming interaction as follows:

(a) Teaming Interactions: Describe your approach for participation in teams composed of representatives from the selected contractor(s), and JPL. Describe your Formulation Phase implementation plan including definition of the tasks to be performed (see Statement of Work in the Specimen Contract). Critique the strawman for Formulation Phase activities described in Exhibit 8 of the Specimen Contract and discuss how they relate to your proposed Formulation Phase tasks. Discuss any similar teaming experience.

(b) Project Organization: Describe your proposed Formulation and Implementation and Phase project organization and how your proposed organization would interact with internal supporting organizations . Describe qualifications of key personnel, their commitment, availability and additional incentives, if any, for motivation to remain on the SIM project. Discuss the proposed personnel's authority to make decisions and resolve problems at various levels.

(c) Work Breakdown Structure: Provide your proposed project Formulation and Implementation Phase product-oriented Work Breakdown Structure (WBS), at least two levels below the IIS task, including logic of how the work will be apportioned. Discuss the relationship between the proposed project organization and the WBS.

(4) Development Approach and Manufacturing Ability, Criterion 4

Provide your Implementation Phase development and manufacturing approach as follows:

(a) Implementation: Describe your approach to implementation of the IIS reference design. Discuss the technical and cost risk reduction features of your approach.

(b) Interfaces, Requirements and Configuration: Discuss your approach to flexibility with regard to interfaces, requirements and configuration during Formulation and Implementation Phases. Discuss your assumptions regarding interfaces between the IIS and PSS, S/C and ground system.

(c) Manufacturing, Assembly and Test: Describe how you would approach the manufacturing, assembly and test of the IIS. Discuss how you would verify the IIS performance prior to delivery. Describe the facilities, processes and test equipment that would be used for the fabrication, assembly and test of the IIS.

(d) Subcontracting Plan: Describe your subcontracting plan including methods of qualifying your suppliers. Discuss your plan for JPL communication and interaction with your lower tier subcontractors.

(e) Product Assurance (Including Safety): Describe your product assurance approach including your approach for subcontractors. Describe your approach to risk management.

3. VOLUME I TECHNICAL-MANAGEMENT PROPOSAL FOR SIM SPACECRAFT(S/C) AND ATLO

a. Assumptions: This work package includes development of the Spacecraft, structure, instrument precision structure subsystem (PSS), command and data handling, power generation and distribution, telecommunications, S/C pointing control, thermal control, and launch vehicle adaptor. This work package also includes the flight segment, assembly, test, and launch operation (ATLO) and post-launch S/C (not instrument) operations.

(1) Management to Cost, Criterion 1

Provide your management to cost approach as follows:

(a) Managing a Cost Constrained Project: Describe your implementation approach to managing a cost constrained project and how you would manage cost growth pressures to your baseline. Include your design/implement-to-cost approach and your method of managing performance-cost trades in a teaming environment. Provide your cost reserve approach.

(b) Schedule: Provide a network schedule with key milestones, products, schedule slack and critical path identified. Describe the phasing of the individual tasks and subtasks as shown in your WBS. Describe your method of schedule management including schedule planning and maintenance. Discuss how you will coordinate schedules with the IPET and IPET teams.

(c) Risk Reduction: Describe the technical, schedule and cost risk reduction features of your approach.

(d) Reporting and Documentation: Provide a reporting plan which includes your management tools and status report approach that would be used to monitor and control costs and schedule performance. Include metrics used for cost, schedule and earned value.

Provide your documentation and document approval approach. Include a discussion of your approach for the following documents: design documents, interface agreement documents, data products and as-built documents.

The reporting and documentation approaches may be consistent with your internal technical and management reporting systems.

(2) Technical Approach and Innovation, Criterion 2

Provide your technical approach and innovative concepts as follows:

(a) Reference Design of the S/C, PSS, ATLO, and S/C Operations. Discuss the key features of your design, and compare them to the reference design contained in Exhibit 1 of the Specimen Contract. Discuss the key areas of technical risk, trade studies, and risk mitigation strategies including objectives of STB-3 and flight system trade studies for life cycle cost reduction. Describe your integration and test approach.

(b) S/C and PSS Capabilities and performance and key subsystems: Discuss how you will achieve PSS performance. Describe the S/C pointing control capabilities. Discuss your proposed S/C engineering subsystems and their performance capabilities. Discuss the PSS "in-air" (ground) performance. Discuss the GSE performance capability required for ATLO.

(c) Innovative Features: Describe any innovative features of your design/approach. Discuss where there may be possible mass and/or cost savings. Discuss the ease of assembly and testability of your design. Discuss the design concepts which lower operations costs.

(3) Project Organization and Interaction of Project Teams, Criterion 3

Provide your project organization and teaming interaction as follows:

(a) Teaming Interaction: Describe your approach for participation in teams composed of representatives from the selected contractor(s) and JPL. Describe your Formulation Phase implementation plan including definition of the tasks to be performed (see Statement of Work in the Specimen Contract). Critique the strawman Formulation Phase activities described in Exhibit 8 of the Specimen Contract and discuss how they relate to your proposed Formulation Phase tasks. Discuss any similar teaming experience.

(b) Project Organization: Describe your Formulation and Implementation Phases proposed project organization and how your proposed organization would interact with internal supporting organizations. Describe qualifications of key personnel and their commitment to this project. Discuss the proposed personnel's authority to make decisions and resolve problems at various levels.

(c) Work Breakdown Structure: Provide your proposed Formulation and Implementation Phases product oriented Work Breakdown Structure (WBS), at least two levels below the S/C task, including how the work will be apportioned. Discuss the relationship between your proposed project organization and the WBS.

(4) Development Approach and Manufacturing Ability, Criterion 4

Provide your Implementation Phase development and manufacturing approach as follows:

(a) Implementation: Describe your approach to implementation of the S/C, PSS, ATLO and required S/C operations facility. Discuss the technical and cost risk reduction features of your approach and proposed use of existing design/equipment.

(b) Interfaces, Requirements and Configuration: Discuss your approach to managing dynamic interfaces, requirements and configuration. Discuss your assumptions between PSS, S/C, ATLO, S/C operations and the IIS. Discuss your Interface management approach and coordination with other teams

(c) Manufacturing, Assembly and Test: Describe how you would approach the manufacturing, assembly and tests of the S/C and PSS. Discuss how you would verify the S/C and PSS performance prior to delivery. Describe the facilities, and the processes and test equipment that would be used for the fabrication, assembly and test of the S/C and PSS.

(d) Subcontracting Plan: Describe your subcontracting plan including methods of qualifying your suppliers. Discuss your plan for JPL communication and interaction with your lower tier subcontractors

(e) Product Assurance (Including Safety): Describe your product assurance approach including your approach for subcontractors. Describe your approach to risk management. Discuss your documentation and document approval process.

II. PROPOSAL INSTRUCTIONS

C. COST

1. INTRODUCTION

This portion of the proposal instructions provides the requirements to be followed in preparing the cost proposal volume:

2. FUNDING

The total cost for the SIM Project Formulation and Implementation Phase is capped at $**TBD** (real year dollars). Of the total the project will hold a reserve of $**TBD** (~TBD%) and has established a preliminary allocation of $**TBD** ($TBD- Formulation Phase and $TBD Implementation Phase) for the WP1 and $**TBD** ($TBD- Formulation Phase and $TBD Implementation Phase) for the WP2.

To assist in the understanding of the order of magnitude/phasing of the funding available for SIM the following funding profile is provided.

$M (Real-Year)

FY'98	FY'99	FY'01	FY'02	FY'03	FY'04	FY'05	TOTAL
$TBD	$TBD	$TBD	$TBD	$TBD	$TBD	$TBD	$TBD

3. VOLUME II COST PROPOSAL

The following instructions are applicable to Volume II (WP1 and WP2) Cost Proposal. Volumes II shall consist of three sections, Section A - Formulation Phase, Section B Implementation Phase, and Section C - Supplemental Business/Cost Information. All three sections should be in real year dollars.

a. Section A - Formulation Phase

(1) If your proposal exceeds $500,000, you must submit a Contract Pricing Proposal Cover Sheet, SF 1411 and if applicable, a Claim for Exemption from Submission of Certified Cost or Pricing Data, SF 1412. **Provide a letter addressed to the Government Audit Office listed on the SF 1411 authorizing the release of rate and other relevant information to the Jet Propulsion Laboratory.**

(a) The SF 1411 must be signed by the proposer's authorized representative.

(b) If the proposer believes the prices of certain specific items included in the proposal are, or are based on, catalog or market prices or prices set by law or regulation (see FAR 15.8), the cost elements supporting data required in Paragraph 2. below are not required. When one of the above exemptions is claimed, the

proposer must submit a fully completed SF 1412, Claim for Exemption from submission of Certified Cost or Pricing Data, for each affected proposed line item greater than $50,000 according to the instructions on the SF 1412.

(2) Propose workloading per task and other costs consistent with the planned funding of $TBD for the two (2) major systems, including fixed fee. The labor mix, material, subcontracts, and other direct costs, including travel should be appropriate for the Formulation Phase tasks described in the Specimen Contract Statement of Work. Provide supporting data for each element of the proposed Formulation Phase costs as described in paragraphs 4 and 5., below.

b. Section B - Implementation Phase

An SF 1411 for the Implementation Phase is not required at this time since a complete Implementation Phase cost proposal including an SF 1411 will be necessary prior to negotiations for the Implementation phase option. However, proposers are cautioned that the cost estimate submitted in response to this RFP will be a significant consideration for negotiation of the Implementation Phase flight system contract(s). The credibility of the Implementation Phase cost estimate, which should be consistent with the planned funding of $**TBD** for the two (2) major systems, including fixed fee, will be a significant selection factor. Provide supporting data for each element of the proposed Implementation Phase Costs as described in paragraphs 4 and 5., below.

c. Section C - Supplemental Business/Cost Information

Except as indicated, the following information is applicable to both the Formulation and Implementation Phases of the program.

(1) Financial Statement

Submit copies of your annual financial statements for the last three years and other information as necessary to prove financial capability. This information should include a list of bank references, an established line of credit, and any additional financial resources required to perform the proposed Contract.

(2) Facilities, Government Property, and Government Support

(a) JPL facilities, property, or services furnished at no cost are limited to those identified in the Specimen Contract Article 1.

(b) If other existing Government-owned facilities, engineering and technical support, or equipment will be used, estimate the rate or total amount for the period of use and add this amount to your proposed estimated cost for the Formulation Phase and/or Implementation Phase as appropriate.

(b) If additional industrial facilities, engineering and technical support, or Government-furnished property are to be supplied at NASA/JPL expense, estimate the total cost and add this amount to your proposed cost for the Formulation Phase and/or Implementation Phase as appropriate.

(c) If facilities, engineering and technical support, and/or property will be used on a noninterference, rent-free basis, provide written evidence of consent from the cognizant Contracting Officer.

(3) Royalty Information

If your proposal contains costs for royalties, indicate the amount and be ready to furnish details as needed.

(4) Accounting Calendar

The proposer will furnish its accounting calendar for each year in which work is anticipated.

(5) Attachments

The Section of this RFP entitled "Attachments," consists of those forms and documents containing information applicable to this RFP. Group A Attachments must be completed and attached to your cost proposal. Group B attachments consist of forms and documents for informational purposes only and can be found through the electronic addresses identified below. It should be noted that Group B Attachments are very important and may become requirements under the Contract.

World Wide Web: http://procurement.jpl.nasa.gov

E-Mail (Internet): procurement@jpl.nasa.gov (type the word "help" in the subject)

Hard copies of the Group B Attachments will be mailed by request only.

4. PROPOSAL PRICING

Submit the cost information requested below, summarized by cost element and time phased by month. (NOTE: Labor should be proposed by work-hour not work month.) This information should be submitted using Attachment A-15, Cost Elements Breakdown form or your computer generated equivalent. Assume flight system authorization to proceed will occur on **TBD**.

a. WBS Structure

The product oriented WBS should include (but is not limited to) the following items, or if not applicable to your proposed design, expand or delete items as appropriate:

(1) Work Package 1 (WP1)

Two Starlight Collector Pods, a Starlight Combiner Pod, and Real-Time Control electronics. This work package also includes the instrument operation for life of mission.

(2) Work Package 2 (WP2)

Precision Structure Subsystem (PSS), S/C engineering subsystems and structure, thermal control and launch adapter. This work package also includes ATLO and S/C operations for life of mission.

(3) SYSTEM INTEGRATION AND TEST (SIT)

System level assembly, test and launch support.

b. WBS Levels

(1) Total effort (WBS level 1.)

If your company fiscal year differs from Government fiscal year (October-September) provide the requested cost information summarized by Government fiscal year and your Company fiscal year.

If possible include a copy of both sets of fiscal year data on a 3.5" computer diskette in an Excel or Excel compatible format. This requirement is applicable to WBS level 1 only. This disk will be used by JPL as a template and should include all rates and formulas used in pricing the proposal.

(2) Report Items (WBS level 2, defined as those items one WBS level below total effort.)

Please provide by month and totals by Government fiscal year.

(3) Tasks (WBS level 3, defined as those items one WBS level below report items.)

Please provide by month and totals by Government fiscal year.

(4) Work Items (WBS level 4.)

If selected for negotiations, you will be required to submit a cost estimate for each (or selected) work item(s) at the lowest level of the expanded WBS.

5. COST ELEMENTS SUPPORTING DATA

The following information is required in support of your estimated cost.

a. Direct Labor

(1) Explain the basis of the labor-hour estimates by classification. Show all calculations in detail including the development of any applicable base.

(2) Discuss the development of the labor rates including all escalation factors. Include a summary rate table by classification and lowest fiscal distribution (i.e., by quarter if rates change quarterly). If available, submit evidence of Government approval of direct labor rates for each labor classification.

b. Material

Submit a breakdown of raw materials and purchased parts, including basis of estimates, part number, description, quantity, unit price, extended price, and source of supply. Describe any pricing factors proposed such as scrap, rework, and usage.

c. Subcontracts

Identify each effort to be subcontracted. List the selected subcontractor's name, location, amount proposed and type of contract. Explain any adjustment made to the subcontractor's proposed costs. Describe the cost or price analysis and negotiations conducted for each subcontract.

d. Other Direct Costs

(1) Travel and Relocation.

(a) Indicate destination, duration and purpose of each trip proposed. Detail the development of each cost element included in the per trip cost.

(b) Submit current company policy regarding the reimbursement of travel relocation costs and the accounting of such costs as direct expense or indirect expense.

(2) Special Tooling and Special Test Equipment

(a) Special Tooling and Special Test Equipment are defined in JPL form entitled Management of Government Property in the Possession of Contractors, which is incorporated into the Specimen Contract. Describe each item of Special Tooling and Special Test Equipment you proposed; explain how it meets the definition referenced above; indicate where and when each item is to be used and the extent of usage.

(b) Explain the Basis of Estimate and furnish supporting data for each item of Special Tooling and Special Test Equipment in

accordance with the requirements of paragraphs entitled Direct Labor, Material and Subcontracts above.

(3) Computer Usage

Describe the proposed computer usage, extent of usage, rates(s), and the total cost. Explain the development of the rate(s).

(4) Consultants

Indicate the specific task requiring consultant services. Identify the proposed consultants, state the proposed hourly/daily rate, the estimated number of hours/days, and any associated costs (such as travel). State whether the consultant has been compensated at the quoted rate for similar services performed in connection with Government contracts.

(5) Licensing and Royalty Information.

If your proposal contains costs for royalties or licenses, indicate the amount and be ready to furnish details.

(6) Other

Explain and support any other direct costs included in the proposal.

e. Indirect Costs

(1) Discuss the development of each proposed indirect expense rate (e.g., labor overhead, material overhead, off-site burden, general and administrative [G&A]). Specifically identify the cost elements included in the base to which each rate is applied. List the indirect expense rates experienced for the past two years. Explain any significant variance between the experienced and proposed rates. Submit evidence of Government approval of each indirect rate if available.

(2) Identify separately any independent research and development expenses included in the G&A rate.

II. PROPOSAL INSTRUCTIONS

D. PAST PERFORMANCE

1. INTRODUCTION

This portion of the proposal instructions sets forth the requirements to be followed in preparing VOLUME III - PAST PERFORMANCE. The information contained in this volume will be used by JPL to evaluate past performance. Past Performance will be assessed with respect to cost and schedule performance.

JPL requests early submission of VOLUME - III. Submission of the information requested in Volume III by **TBD** will substantially facilitate JPL's evaluation process. If you do not submit Volume III early, all information required by this RFP, including Volume III, must be submitted by the RFP due date.

Volume III should be prepared in accordance with the following instructions.

2. VOLUME III PAST PERFORMANCE

Provide a synopsis of similar contracts performed by the organization proposed for this effort within the past five (5) years (please assure that the contacts requested below are current). Include similar on-going efforts. These synopses are to include the following customer contract information:

a. contract number;

b. customer name and current address;

c. current or last cognizant contract administrator and technical contact;

d. current telephone and fax numbers;

e. period of performance;

f. contract type and description of incentive or award fee process, if any;

g. average number of personnel assigned to contract effort; and

h. initial and final cost or price.

PAGE LIMITATION - TWO (2) PAGES PER CONTRACT DISCUSSED.

II. PROPOSAL INSTRUCTIONS

E. COST AND TECHNICAL-MANAGEMENT PROPOSAL ADJUSTMENTS

1. INTRODUCTION

A proposer who submits more than one stand-alone technical-management, cost and past performance volume for the SIM Flight system and intends to perform both work packages shall provide a single supplemental volume (Volume IV) showing the technical, management and cost effect of combining the two work packages.

2. VOLUME IV COST AND TECHNICAL-MANAGEMENT PROPOSAL ADJUSTMENTS

Provide a discussion showing the cost and technical management effects of combining the proposed areas of responsibility.

Volume IV must include:

a. Cost adjustments due to the combined effort traceable to the task level of the WBS for the individual proposals. If you propose for both work packages and submit a Volume IV, you must provide a discussion on the combination of the two work packages.

b. Technical-Management adjustments due to the combined effort which supports the cost adjustments specified in (a) above. The technical-management adjustments should be described recognizing the overall mandatory page limit for this volume.

II. PROPOSAL INSTRUCTIONS

F. ATTACHMENTS TO THE SOLICITATION

The attached forms and documents are organized into two major groupings. Note that the Attachments you receive may not be sequentially numbered.

1. Group A consists of forms and documents that must be completed and returned as part of the proposal.

2. Group B consists of forms and documents for information purposes only in preparing your proposal but may become a requirement under the Contract.

GROUP A

Attachment	Title and Form Number
A-1	Acknowledgment (form JPL 2384)
A-2	Cost Accounting Standards (form JPL 2842)
A-3	Government Property (JPL 0544)
A-4	Contract Pricing Proposal Cover Sheet (SF 1411) (Contractor Supplied)
A-5	Claim for Exemption from Submission of Certified Cost or Pricing Data (SF 1412) (Contractor Supplied)
A-15	Cost Elements Breakdown

GROUP B

Attachment	Title and Form Number
B-1	Waiver of Rights to Invention (form JPL 62-301)
B-5	Notice of Requirement of Pre-Award On-Site Equal Opportunity Compliance Review (form JPL 3553)
B-6	Requirements for Subcontracting Plan (form JPL 0294)
B-10	Certificate of Current Cost or Pricing Data (form JPL 2496)
B-11	Standards of Conduct and Procedures for Handling Contractor Personnel Problems, Discipline, and Separation
B-12	Claims for Exemption to Cst or Pricing Data

Attachment A-1

ACKNOWLEDGMENT

This completed Acknowledgment Must Accompany Your Offer

1. Offeror name: _____

2. Name and telephone numbers of persons authorized to conduct negotiations:

   Name: _____ Phone Number: _____

3. Name, address phone number of cognizant Government Audit Agency representative:

   _____

4. The Offeror acknowledges that the Specimen Contract, including the Special Provisions, General Provisions, Additional General Provisions and Attachments, are acceptable in case of contract award. NOTE: the General Provisions and Additional General Provisions cannot be altered without NASA approval.

   ☐ Yes ☐ No (If no, attach a detailed explanation of the exceptions, including rationale)

5. ***Negotiator fills in number of days***

   The offeror acknowledges that the offer will be valid for **180** days after the date for receipt of offers specified on the cover pages of this solicitation.

6. The Offeror acknowledges receiving the following Addenda to the RFP:

   Addenda No(s).:_____
   Note: Failure to acknowledge receipt of all Addenda may result in your offer being rejected.

7. Preference will be given to United States (U.S.) domestic end products under the Buy American Act (BAA) for those items to be used in the U.S. and under the Balance of Payments Program (BPP) for supplies and services (including construction) to be used outside the U.S.

   The Offeror certifies that each end product/service to be supplied is domestic, as defined in the BAA and BPP except for those which the Offeror has listed, with country of origin shown, on a separate attachment to this Acknowledgment and that components of unknown origin were considered by the Offeror to have been mined, produced, or manufactured outside the U.S. The Offeror also certifies on the

attachment whether the Offeror qualifies for any special treatment as a signator to any international agreements, such as designated country status under the Trade Agreements Acts.

8. If your offer exceeds $1,000,000, and you have received EEO clearance within the last 12 months, attach a copy of the clearance to this acknowledgment.

9. Can you supply any of the requested items through a Federal Supply Schedule (GSA) Contract?

☐ Yes ☐ No (If yes, list FSS (GSA) Contract No.: _____

10. The Offeror certifies that it is the type of business indicated below. Please check the appropriate box(es), and fill in the blank in appropriate.

☐ Large Business ☐ Small Business (as defined by FAR) ☐ Nonprofit Organization

☐ Small Disadvantaged Business (as defined by FAR)

☐ Women-Owned Business (as defined by FAR) ☐ Labor Surplus Area Concern (as defined by FAR)

☐ Educational Institution (as defined by FAR) ☐ HBCU/OMI

☐ Sole Ownership ☐ Partnership ☐ Corporation, incorporated under the laws of the state of:_____

11. Your submittal of a proposal certifies your compliance with the requirements specified in form JPL 2892, "Certifications of Nonsegregated Facilities, Clean Air and Water, Anti-Kickback Compliance, Americans with Disabilities Act Compliance, Certification and Disclosure regarding Payments to Influence Certain Federal Transactions, and Certification of Full Disclosure Regarding Debarred, Suspended, or Proposed for Debarment Status," attached as Exhibit A to the General Provisions.

Offeror Certification:

The undersigned certifies that he/she is authorized to certify and to commit his/her company regarding the information on this form and for the total offer amount submitted in response to this solicitation.

Date: _____

Offeror: _____
(name of contracting entity not just operating division)

Name: _____

Title: _____

Signature: _____

Telephone Number: _____

Attachment A-2

COST ACCOUNTING STANDARDS NOTICE AND CERTIFICATION

This notice does not apply to small businesses or foreign governments. This notice is in three parts, identified by Roman numerals I through III. Offerors must examine each part and provide the requested information to determine Cost Accounting Standards (CAS) requirements applicable to any resulting contract.

I. DISCLOSURE STATEMENT - COST ACCOUNTING PRACTICES AND CERTIFICATION

(a) Any contract exceeding $500,000 resulting from this solicitation, except contracts in which the price negotiated is based on (i) established catalog or market prices of commercial items sold in substantial quantities to the general public, or (ii) prices set by law or regulation, will be subject to the requirements of 48 CFR, Parts 9903 and 9904, except for those contracts which are exempt as specified in 48 CFR, Subpart 9903.201-1.

(b) Any offeror submitting a proposal which, if accepted, will result in a contract subject to the requirements of 48 CFR, Parts 9903 and 9904, must, as a condition of contracting, submit a Disclosure Statement as required by 48 CFR, Subpart 9903.202. The Disclosure Statement must be submitted as a part of the offeror's proposal under this solicitation, unless the offeror has already submitted a Disclosure Statement disclosing the practices used in connection with the pricing of this proposal. If an applicable Disclosure Statement has already been submitted, the offeror may satisfy the requirement for submission by providing the information requested in paragraph (c) of Part I of this notice.

CAUTION: ***In the absence of specific regulations or agreement, a practice disclosed in a Disclosure Statement shall not, by virtue of such disclosure, be deemed to be a proper, approved, or agreed-to practice for pricing proposals or accumulating and reporting contract performance cost data.***

(c) Check the appropriate below.

☐ (1) Certificate of Concurrent Submission of Disclosure Statement.

NOTE: ***Disclosure must be on Form No. CASB DS-1. Forms may be obtained from the cognizant ACO.***

(A) The offeror hereby certifies that, as a part of the offer, copies of the Disclosure Statement have been submitted as follows:

Date of Disclosure Statement: _____

Name and Address of Cognizant ACO where filed: _____

_____

(B) The offeror further certifies that practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statement.

☐ (2) Certificate of Previously Submitted Disclosure Statement.

(A) The offeror hereby certifies that the Disclosure Statement was filed as follows:

Date of Disclosure Statement: _____

Name and Address of Cognizant ACO where filed: _____

_____

(B) The offeror certifies that practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the applicable Disclosure Statement.

☐ (3) Certificate of Monetary Exemption.

(A) The offeror hereby certifies that the offeror, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards of negotiated prime contract and subcontracts subject to CAS totaling more than $25,000,000 (of which at least one award exceeded $1,000,000) in the cost accounting period immediately preceding the period in which this proposal was submitted.

NOTE: ***This exemption does not apply if the net awards subject to CAS totaled more than $25,000,000 if any award exceed to $1,000,000.***

(B) The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the JPL Negotiator immediately.

☐ (4) Certificate of Interim Exemption.

CAUTION: ***Offeror's currently required to disclose because they were awarded a CAS-covered prime contract or subcontract of $25,000,000 or more in the current cost accounting period may not claim this exemption. Further, the exemption applies only in connection with proposals submitted before expiration of the 90-day period following the cost accounting period in which the monetary exemption was exceeded.***

(A) The offeror hereby certifies that:

(i) The offeror first exceeded the monetary exemption for disclosure, as defined in subparagraph I.(c)(3) above, in the cost accounting period immediately preceding the period in which this offer was submitted; and

(ii) In accordance with 48 CFR, Subpart 9903.202-1, the offeror is not yet required to submit a Disclosure Statement.

(B) The offeror further certifies that if an award resulting from this proposal has not been made within 90 days after the end of that period, the offeror will immediately submit a revised certificate to the JPL Negotiator, in the form specified under subparagraph I.(c)(1) or (2) above, as appropriate, to verify submission of a completed Disclosure Statement.

II. COST ACCOUNTING STANDARDS - ELIGIBILITY FOR MODIFIED CONTRACT COVERAGE

If the offeror is eligible to use the modified provisions of 48 CFR, Subpart 9903.201-2(b) and elects to do so, the offeror will indicate by checking the box below. Checking the box below means that the resulting contract is subject to the "Disclosure and Consistency of Cost Accounting Practices" Additional General Provision in lieu of the "Cost Accounting Standards" General Provision.

CAUTION: ***An offeror may not claim eligibility for modified contract coverage is this proposal is expected to result in the award of a CAS-covered contract of $25,000,000 or more or if, during its current cost accounting period, the Offeror has been awarded a single CAS-covered prime contract or subcontract of $25,000,000 or more.***

☐ (a) The offeror hereby claims an exemption from the "Cost Accounting Standards" clause under the provisions of 48 CFR, Subpart 9903.201-2(b) and certifies that the offeror is eligible for use of the "Disclosure and Consistency of Cost Accounting Practices" Additional General Provision because:

(1) During the cost accounting period immediately preceding the period in which this proposal was submitted, the offeror received less than $25,000,000 in awards of CAS-covered prime contracts and subcontracts; or

(2) During the cost accounting period immediately preceding the period in which this proposal was submitted, the offeror did not receive a single CAS-covered award exceeding $1,000,000.

(b) The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the JPL Negotiator immediately.

III. ADDITIONAL COST ACCOUNTING STANDARDS APPLICABLE TO EXISTING CONTRACTS

The offeror will indicate below whether award of the contemplated contract would, in accordance with subparagraph (a)(3) of the "Cost Accounting Standards" General Provision, require a change in established cost accounting practices affecting existing contracts and subcontracts.

☐ Yes ☐ No

Attachment A-3

GOVERNMENT PROPERTY

INSTRUCTIONS:

1. Complete the Government Property Questionnaire.

2. Include as an enclosure with your proposal the original and one copy of the cognizant Contracting Officer's consent letter, with copies of the Facilities or Equipment exhibit (referenced in paragraphs 1.b below).

GOVERNMENT PROPERTY QUESTIONNAIRE:

1. Government Property:

   Will existing Government property be used in performing JPL-proposed work? _____Yes _____ No

   a. If "Yes", in accordance with FAR 45.4, request from the cognizant Contracting Officer a consent letter to use Government property on a rent-free, non-interference use basis.

   b. If "Yes", prepare a Facilities or Equipment exhibit stating the name, address and telephone number of the cognizant Contracting Officer, facilities contract number, location where work will be performed, purpose for which facilities or equipment will be used and projected period of intended use (first, last and intervening months). Identify the facilities or equipment by item, quantity, and Government property number. Estimate the facilities or equipment rental by monthly rate or total amount which would otherwise be an additional cost item, computed in accordance with FAR 45.403.

2. Government-Furnished Property:

   _____ Yes _____ No

   If "Yes," prepare as a separate section on the above exhibit (see paragraph 1.b) a list of the required GFP. Identify the desired GFP by item, quantity, and use (e.g., expendable or non-expendable, built into end item, returned to JPL). Indicate the additional costs required if such GFP is not available for performing JPL-proposed work.

COST ELEMENT BREAKDOWN

SUPPORT DATA REF.	COST ELEMENT			MONTH		GOV'T.FY			TOTAL
	DIRECT LABOR HOURS								
	by labor category								
	TOTAL HOURS								
	DIRECT LABOR RATE								
	by labor category	$	$	$	$	$	$	$	$	$
		$	$	$	$	$	$	$	$	$
		$	$	$	$	$	$	$	$	$
		$	$	$	$	$	$	$	$	$
	DIRECT LABOR DOLLARS								
	by labor category	$	$	$	$	$	$	$	$	$
		$	$	$	$	$	$	$	$	$
		$	$	$	$	$	$	$	$	$
		$	$	$	$	$	$	$	$	$
	TOTAL DIRECT LABOR	$	$	$	$	$	$	$	$	$
	OVERHEAD								
	base & %	$	$	$	$	$	$	$	$	$
	base & %	$	$	$	$	$	$	$	$	$
	TOTAL OVERHEAD	$	$	$	$	$	$	$	$	$
	MATERIAL	$	$	$	$	$	$	$	$	$
	MATERIAL BURDEN	$	$	$	$	$	$	$	$	$
	SUBCONTRACT	$	$	$	$	$	$	$	$	$
	SUBCONTRACT BURDEN	$	$	$	$	$	$	$	$	$
	OTHER DIRECT COST								
	TRAVEL, etc.	$	$	$	$	$	$	$	$	$
	TOTAL ODC	$	$	$	$	$	$	$	$	$
	SUB-TOTAL COST	$	$	$	$	$	$	$	$	$
	G&A BASE & %	$	$	$	$	$	$	$	$	$
	TOTAL COST	$	$	$	$	$	$	$	$	$
	PROFIT/FEE base & %	$	$	$	$	$	$	$	$	$
	TOTAL PRICE	$	$	$	$	$	$	$	$	$

D R A F T

RFP NO. KO4-4-7586-945

April 24, 1998
Specimen Contract

COST-PLUS-AN-INCENTIVE-FEE RESEARCH & DEVELOPMENT CONTRACT

NO. **TBD**

BETWEEN

CALIFORNIA INSTITUTE OF TECHNOLOGY
JET PROPULSION LABORATORY
(The "Institute" or "JPL")
4800 OAK GROVE DRIVE
PASADENA, CALIFORNIA 91109-8099

AND

TBD

THIS CONTRACT FOR

SPACE INTERFEROMETRY MISSION (SIM)
INDUSTRY PARTNER

IS A

SUBCONTRACT UNDER JPL's NASA PRIME CONTRACT
TASK ORDER NO. RF-310

ESTIMATED COST:	**TBD**
INCENTIVE FEE:	**TBD**
TOTAL:	**TBD**

TOTAL AMOUNT ALLOTTED: **TBD**

A DO - C9 Rating is assigned to this Contract under DMS Regulation 1

TABLE OF CONTENTS

The following Exhibits are incorporated by reference and are available on the JPL SIM home page on the worldwide web address http://sim.jpl.nasa.gov/sim/:

Exhibit 1. SIM Reference System Design

Exhibit 3. Functionalities of STB-3 and Flight Precision Structure Subsystem (PSS)

Exhibit 4. Applicable Documents

The following general provisions and additional general provisions are incorporated by reference and are available on the JPL home page on the worldwide web address http://procurement.jpl.nasa.gov by selecting terms and conditions:

GENERAL PROVISIONS (GP)

PART I, FORM JPL 4460, R 1/95: ARTICLES GP-1 - GP-60 WITH INCORPORATED EXHIBITS

PART II - COST-REIMBURSEMENT WITH COMMERCIAL ORGANIZATIONS CONTRACT, FORM JPL 4462, R 1/95: ARTICLES GP-61 - GP-82, WITH INCORPORATED EXHIBITS

ADDITIONAL GENERAL PROVISIONS (AGPs)

AGP-2, ADMINISTRATION OF COST ACCOUNTING STANDARDS
(JPL FORM 4474 R 1/95)

AGP-3, COST ACCOUNTING STANDARDS (JPL FORM 4473, R 1/95)
OR
AGP-4, DISCLOSURE AND CONSISTENCY OF COST ACCOUNTING PRACTICES
(JPL FORM 4498 R 1/95)

AGP-30, NEW TECHNOLOGY (JPL FORM 4493 R 1/95)
OR
AGP-31, PATENT RIGHTS - RETENTION BY THE CONTRACTOR (SHORT FORM) (JPL FORM 4497 R 1/95)

AGP-47, SAFETY AND HEALTH (JPL FORM 4475 R 1/95)

PREAMBLE

This Contract, entered into on by and between the CALIFORNIA INSTITUTE OF TECHNOLOGY, (hereinafter called the "Institute" or JPL), a corporation organized and existing under the laws of the State of California, and

"TBD"

hereinafter called the "Contractor"), a corporation organized and existing under the laws of the State of **"TBD"** and constituting a subcontract under NASA Prime Contract NAS7-1260 between the Institute and the Government;

WITNESSETH THAT:

The Contractor agrees to furnish and deliver the supplies and perform the services set forth in this Contract for the consideration stated herein.

SCHEDULE

ARTICLE 1. STATEMENT OF WORK

I. Work Package 1: Interferometer Instrument System (IIS)

The Contractor shall participate in the Space Interferometry Mission (SIM) Project as team member (hereinafter called the "Instrument Industry Partner" or "IIP") with JPL in the SIM Integrated Management Team (IMT), Integrated Project Engineering Team (IPET), and Instrument System Engineering Team (ISET)., The **combined** team members will work together to define the IIS requirements, and design, develop and operate the SIM Testbed 3 (STB-3) and the Instrument per requirement of Exhibit 1 "SIM Reference System Design". The work shall be accomplished in two phases as follow:

(a) Formulation Phase (Traditional NASA Phase A/B)

The IIP Contractor shall provide a Core Team (CT) of senior engineering and management personnel to participate in the Formulation Phase technology development and IIS requirement and preliminary design activities. For the initial technology development, and concept definition activities, The IIP CT shall be partially collocated at JPL with the rest at contractor home facilities. The IIP participation shall be in, accordance with Exhibit 2 "Integrated Project Teams Role Statement During the Formulation Phase (Draft)" This effort will include but not necessarily be limited to the following:

(1) Support Instrument System Engineering in the areas of:

a) Synthesis of the SIM architecture and performance with the analytical modeling efforts of specialists at JPL and the IIP home institution.

b) Trade studies in support of the IPET and ISET definition efforts. This includes configuration and performance studies, definition of internal and external interfaces, control of technical resources.

c) IIS Subsystem functional, testability, and operability requirements.

d) IIS Validation and Verification (V&V) Matrix.

e) STB-3 system requirements.

f) STB-3 and flight Instrument Integration and Test (II&T) Ground Support Equipment (GSE) functional requirements.

g) System and subsystem configuration management.

(2) Preliminary Design

A. The IIP shall support the following activities:

a) Identification, design, fabrication and test development models of key subsystems and components as appropriate to reduce risk in key IIS technology areas.

b) Development and maintenance of the STB-3 system detail design, specifications, and baseline configuration.

c) Development of the integration and test plan for STB-3.

d) Design, fabrication, assembly, and test of STB-3 Combiner Pod.

e) Integration, calibration, and test of STB-3 and performance of appropriate experiments.

f) Development and maintenance of the Instrument System and Subsystem preliminary Design (including internal and external interfaces) Specification and baseline configuration.

g) Development of the flight Instrument integration, test and qualification plan.

h) Identification of long lead time procurements for the flight instrument.

A. The IIP shall:

b) Design, fabricate, assemble , and test STB-3 Collector Pods.

c) Design, fabricate, assemble, test, and deliver to JPL all GSE assemblies for STB-3. *

d) Develop preliminary design of the II&T GSE (facilities, fixtures, and planning).*

* Some STB-3 hardware may be GFE depending upon IIP Contract award date.

Note to Proposer: Hardware and software development will be performed by IIP depending upon IMT recommendation of the lowest risk approach to meeting schedule and technical commitments. These efforts will be covered by Contract modifications on as required basis.

(3) Implementation Phase (traditional NASA Phase C/D/E) Plan and Commitment

a) Develop a detailed implementation plan and schedule for the IIS through the end of mission.

b) Prepare a detailed cost proposal for the design and development of the IIS.

c) Contribute to the definition of and complete negotiation of terms of a complete Implementation Phase contract.

(4) Support Project Teams Planning and Management

For all of the tasks above, the following apply:

(A) Development of the Project Implementation Plan

(B) Development of the SIM Instrument Formulation Phase Implementation plan.

(C) The contractor shall report financial and technical status to JPL as follows:

1. Submit Contractor Financial Management Report (NASA Form 533Q or equivalent) monthly.

2. Submit two (2) copies of Subcontracting Report for Individual Subcontracts, Standard Form 294, and Summary Subcontract Report, Standard Form 295, completed for the prior period.

(D) Prepare supporting technical and cost material for presentation at NASA and internal project reviews and prepare support material for Action Items resulting from these reviews.

Note to Proposer: **The following Implementation Phase section is included for proposal purposes only. The Statement of Work will be further defined during Formulation Phase and negotiations of Implementation Phase.**

(b) Implementation Phase (Traditional NASA Phase C/D/E)

The IIP Contractor shall provide a Core Team (CT) of senior engineering and management personnel to participate in Implementation Phase activities.. The IIP CT shall be partially collocated at JPL with the rest at contractor home facilities. The IIP participation shall be in, accordance to Exhibit 2 shall perform but not necessarily be limited to the following task

(1) Support Instrument System Engineering in the areas of:

a) Maintenance of the Instrument System requirement and interfaces.

b) Maintenance of the Instrument Configuration management.

c) maintenance of the System and Subsystem analytical models.

d) Maintenance of the V&V matrix.

(2) Detailed Design

a) Support detail design and development of the Instrument flight software, which will be a GFE to the IIP.

b) Complete detailed design and development of flight IIS hardware (excluding Precision Structure) and associated GSE components.

c) Finalize and maintain the Instrument System Specification in cooperation with the other members of the SIM team.

d) Maintain IIS subsystem functional requirements.

e) Finalize and maintain the definition of internal and external interfaces.

f) Develop Problem and Failure Report (PFR) and Engineering Change Request (ECR) Process plan.

g) Develop detail System and Subsystem Test Procedures in accordance with I&T test plan and V&V matrix developed during the Formulation phase.

(3) Fabricate, assemble, and test the Instrument System and Subsystem

a) Procure or manufacture IIS flight hardware and associated GSE components.

b) Assemble and test the IIS and associated GSE components.

c) Develop required breadboards, interface development models, engineering models, and qualification models.

d) Develop required Instrument ground operations hardware and software

e) Support PFR and ECR process.

(4) Integrate and Test the IIS

a) Complete integration and test of GSE.

b) Integrate the Instrument System and Subsystem to the SIP produced Precision Structure and system cabling.

c) Test and validate the IIS performance to the Test Procedures developed during Detail Design period of this Phase.

d) Maintain the Instrument Integration, test, and calibration Plans.

e) Support PFR and ECR process

f) Deliver one (1) flight qualified IIS with appropriate test fixtures, shipping and handling equipment to the SIP.

Note to Proposer: **The Spacecraft (S/C), Assembly Test and Launch Operations (ATLO) Industry Partner (SIP) shall design develop the Precision Structure and the Spacecraft, Perform ATLO and operate the spacecraft engineering subsystems as outlined in Section II of ARTICLE 1.**

(5) Support Assembly, Test, and Launch Operations (ATLO) in areas of:

(A) On-site accommodations of resident IIS, S/C, and Ground System (GS) personnel.

(A) Mating of the IIS and S/C engineering subsystems.

(B) Functional and environmental tests as specified in the integration and test plans and procedures.

(B) Verification that the integrated system meets the specification defined during the Formulation Phase.

(C) Integration of the Instrument ground operations hardware and software into the Flight Operations system.

(D) Preparation of mission operations/In-Orbit Checkout (IOC) plans.

(E) As-built documentation and operating manuals for operations (test data, design description, operating manuals, calibration procedures, telemetry format, command dictionary, etc.).

(F) Integration and test of Mission Operations System Hardware and Software into required ATLO activities.

(G) SIM end-to-end mission testing

(H) Shipment of the SIM flight qualified system to the launch facility.

(I) Integration of the SIM flight system to the launch vehicle.

(J) Launch and IOC operations.

(6) Support Mission Operations in areas of:

(A) Mission Operations

(B) Lead the Instrument operation as per developed Plans.

(C) Planning and replanning activities.

(D) Failure mode simulation and analysis.

(E) Failure recovery scenarios for in orbit implementation.

(F) Maintenance and operation of the STB-3.

(G) Participation in the Integrated Mission Management and Engineering Team (IMMET).

(7) Support Project Teams Planning and Management

a) Plan the Implementation Phase activities.

b) Develop the SIM Instrument Implementation plan.

c) Report financial and technical status to JPL and SIM Project Office.

d) Prepare supporting technical and cost material for presentation at NASA and internal project reviews, and prepare support material for Action Items resulting from these reviews.

(c) The following Exhibits are hereby incorporated into and made a part of this contract:

Exhibit 1 SIM Reference System Design

Exhibit 2 Integrated Project teams Role Statement During the Formulation Phase, Draft

Exhibit 3 Functionalities of STB-3 and Flight PSS

Exhibit 4 Applicable Documents

1. SIM Science Requirement Document (SRD), Preliminary
2. SIM Project System Requirement Document (PSRD)), Preliminary
3. Instrument System Requirement Document (ISRD), PISRR
4. Spacecraft System Requirement Document (SCSRD), Preliminary
5. Mission System Requirement Document (MSRD), Preliminary
6. SIM Technology Plan

General information regarding SIM and **Exhibit (1) through (4)** are available on the SIM homepage which can be accessed at URL http://sim.jpl.nasa.gov/sim/ Further background information can be obtained from the Origins Program homepage at URL http://origins.jpl.nasa.gov/. **Exhibit (2)** is attached. If requested, Exhibits (1) through (4) hard copy will be mailed out.

(d) JPL will:

1. Review documents and provide comments as appropriate.
2. Lead the SIM management and technical teams

II. Work Package 2: Spacecraft (S/C), Precision Structure, ATLO (Assembly, Test and Launch Operations) and S/C Operations

The Contractor shall participate in the SIM Project as a team member (hereinafter called the "Spacecraft (S/C) Industry Partner" or "SIP") with JPL and the Interferometer Industry Partner (IIP), with shared responsibility for SIM development. The **SIP** team will work together to define the STB-3 structure, the Flight Precision Structure Subsystem (PSS), the S/C, and ATLO, and will design, develop and operate the SIM flight S/C systems. Team interactions will be as described in Exhibit-2 "Integrated Project Teams Role Statement During the Formulation Phase, Draft."

(a) Formulation Phase (Traditional NASA Phase A/B)

(1) Spacecraft Definition

The SIP contractor will work with other SIM members to define, design, and develop a S/C which meets the requirements implied by the baseline design described in Exhibit 1 "SIM Reference System Design" in two phases , the Formulation Phase and the Implementation Phase. Tasks include but are not limited to the following:

(A) Mission and System Engineering Support

(i) Provide staff and equipment in support of the SIM S/C definition, including collocated senior staff members at JPL for the initial concept definition activity. The SIM team will synthesize the SIM architecture with the analytical support of specialists at the contractor's home institution.

(ii) Provide staff and equipment for trade studies in support of SIM S/C definition effort at the SIP contractor's home facilities. This includes configuration and performance studies, definition of external interfaces, mass optimization, and cost optimization.

(B) Preliminary Design

(i) Produce the S/C functional requirements and System Specification in cooperation with the other members of the SIM team.

(ii) Define external interfaces in cooperation with other SIM team members.

(iii) Design all aspects of the S/C at the functional level in preparation for the Preliminary Design Review (PDR).

(iv) Identify major S/C subcontractors.

(v) Identify, design, fabricate and test development models and/or simulators of key subsystems/ components as appropriate to support development , integration and testing in SIM Testbeds.

(vi) Develop a S/C assembly, test and qualification plan.

(C) S/C Implementation Phase Plan and Commitment

(i) Develop a detailed implementation plan and schedules for the S/C through launch plus 30 days.

(ii) Prepare a detailed S/C cost proposal for the Implementation Phase.

(iii) Contribute to the definition of and complete negotiation on terms of a complete Implementation Phase contract.

(iv) Identify all long lead time procurements for preliminary design models.

(2) Testbed and Flight Precision Structure Subsystem (PSS)

The Contractor shall participate in the SIM Program as a team member of the SIM team with responsibility for both the STB-3 and flight PSS. As a member of the SIM team, the SIP team member will work with other SIM team members to define, design, and develop a precision structure which meets the requirements implied by the reference design of Exhibit 1. During the SIM Formulation Phase, the SIP will define, design, build, qualify deliver and support testing of the STB-3 structure, and will define the flight PSS.

(A) STB-3 Definition

(i) Support STB-3 System Engineering

a. Provide staff and equipment in support of the SIM team, including collocated senior staff members at JPL for the initial concept definition activity (assume 2 months). The SIM team will synthesize the SIM STB-3 architecture with the analytical support of specialists at the contractor's home institution.

b. Provide staff and equipment for trade studies in support of the SIM STB-3 definition effort at the S/C team's home facilities. This includes configuration and performance studies, definition of external interfaces, mass optimization, and cost optimization.

(ii) STB-3 Preliminary Design

a. Produce the STB-3 subsystem functional requirements and specification in cooperation with the other SIM team members.

b. Produce the STB-3 preliminary design (including external interfaces) to address functionalities of Exhibit 3 "Functionalities of STB-3 and Flight PSS" in preparation for the STB-3 PDR.

c. Produce and document the preliminary design for the mechanical assembly and handling support equipment (AHSE) for the STB-3.

d. Validate the STB-3 structural design with models, modal testing and data correlation.

e. Coordinate and support all system and subsystem-level reviews.

f. Propose STB-3 structure implementation plans.

(B) STB-3 Structure Development and Delivery

(i) STB-3 Structure Detailed Design

a. Complete detailed design of STB-3 structure consistent with preliminary design guidelines from the Formulation Phase.

b. Lead the STB-3 Structure Critical Design Review (CDR).

c. Support maintenance of the STB-3 System Specification in cooperation with the other members of the SIM team.

d. Finalize the definition of external interfaces.

(ii) STB-3 Implementation and testing Phase

a. Assemble and qualify the STB-3 structure.

b. Fabricate, assemble and qualify S/C simulators as needed for testing and evaluation of the STB-3.

c. Deliver STB-3 structure and S/C simulator s to JPL.

d. Support assembly of the interferometer instrument on STB-3 structure.

e. Support testing of the STB-3 with interferometer instrument to an appropriate degree as determined by the SIM team during the project Formulation Phase.

(C) Flight PSS Definition

(i) Support Flight PSS Mission and System Engineering

a. Provide staff and equipment in support of the SIM team, including collocated senior staff members at JPL for the initial concept definition activity. The SIM team will synthesize the PSS architecture with the

analytical support of specialists at the contractor's home institution.

b. Provide staff and equipment for trade studies in support of the PSS definition effort at the SIP contractor's home facilities. This includes configuration and performance studies, definition of external interfaces, mass optimization, and cost optimization.

(ii) PSS Preliminary Design

a. Produce the Flight PSS preliminary design (including external interfaces) to address functionality of Exhibit 3 in preparation for the PSS PDR:

b. Produce the PSS subsystem functional requirements and Specification in cooperation with the other SIM team members.

c. Produce and document the preliminary design for the mechanical assembly and handling support equipment (AHSE) for the PSS.

d. Identify, design, fabricate and test development models and/or simulators of PSS as appropriate to validate the structural design.

e. Coordinate and support all system and subsystem-level reviews

(D) PSS Implementation Phase Plan and Commitment

(i) Develop a detailed implementation plan and schedules for the PSS through launch plus 30 days.

(ii) Prepare a detailed Flight PSS cost proposal for the Implementation Phase.

(iii) Contribute to the definition of and complete negotiation on terms of a complete Implementation Phase contract.

(iv) Identify all long lead time procurements.

(3) ATLO Planning

During the Formulation Phase the SIP effort will include but not necessarily be limited to the following specific tasks:

(A) Mission and System Engineering Support

(i) Provide staff and equipment in support of the SIM team, including collocated senior staff members at JPL for the initial

concept definition. The SIM team will synthesize the SIM architecture with the analytical support of specialists at the contractor(s) home institution(s).

(ii) Provide staff and equipment for trade studies in support of the SIM definition effort at the SIP contractor's home facilities. This includes configuration and performance studies, definition of external interfaces, mass optimization, and cost optimization.

(iii) Coordinate with JPL and the IIP in the development of their respective design and ATLO plans.

(B) Preliminary Design

(i) Provide support to the IIP and the JPL Ground System development manager for development of a buildable and testable SIM hardware/software mission system design.

(ii) Develop the SIM environmental requirements and produce the Flight system Verification Plan in cooperation with the other members of the SIM team. During the system design activity assure that verification capability is included in the design.

(iii) Support system level interface documents.

(iv) Design all aspects of the ATLO facilities, fixtures and planning up to Preliminary Design Review (PDR) maturity level.

(v) Identify major ATLO subcontractors.

(vi) Produce the ATLO Test Plan in cooperation with the other members of the IPET.

(vii) Produce the ATLO equipment functional requirements.

(C) ATLO Implementation Phase Plan and Commitment

(i) Develop a detailed implementation plan, approach and schedules for the ATLO through launch plus 30 days.

(ii) Prepare a detailed cost proposal for the design and development of the ATLO activities.

(iii) Contribute to the definition of and complete negotiation on terms of a complete Implementation Phase contract.

(4) S/C Operations Definition

During the Formulation Phase the S/C operations effort will include but not necessarily be limited to the following specific tasks:

(A) Mission and System Engineering Support

(i) Provide staff and equipment in support of the SIM team, including collocated senior staff members at JPL for the initial concept definition activity. The SIM team will synthesize the SIM architecture with the analytical support of specialists at the contractor(s) home institution(s).

(ii) Provide staff and equipment for trade studies in support of the SIM definition effort at the SIP contractor's home facilities. This includes ground system configuration and performance studies, definition of ground/flight system interfaces, and cost optimization.

(iii) Coordinate with the SIM technical teams in the development of design and operations plans.

(B) Preliminary Design

(i) Coordinate with the IIP and the JPL Ground System development manager for development of a cost-effective and testable SIM S/C hardware/software ground system to include the following functions:

a. Communication channels to NASA telemetry systems

b. S/C attitude prediction and reconstruction

c. S/C Lock and Ephemeris Timing correlation

d. S/C bus performance tracking and analysis

e. S/C Anomaly Investigation/ simulation

f. S/C Flight S/W Maintenance

(ii) Participate in joint science/ instrument operations planning

(iii) Develop the SIM S/C operational requirements and participate in the development of an Operations Plan in cooperation with the Mission System Engineering Team. During the system design activity assure that system verification is included in the design.

(iv) Support system level interface documents.

(v) Design all aspects of the S/C operations facilities, fixtures and planning up to Preliminary Design Review (PDR) maturity

level. The S/C Operations Center is assumed to be located at the SIP contractor's site.

(vi) Identify major S/C Operations subcontractors.

(vii) Produce the S/C Operations Center Verification and Validation Plan in cooperation with the other members of the SIM team.

(viii) Produce the S/C Operations Center System Specification, equipment list and functional requirements.

(C) S/C Operations Implementation Phase Plan and Commitment

(i) Develop a detailed implementation plan, approach and schedules for the S/C Operations for the life of mission.

(ii) Prepare a detailed cost proposal for the design and development of S/C operations center at the SIP facility.

(iii) Contribute to the definition of and complete negotiation on terms of a complete Implementation Phase contract.

Note to Proposer: The following Implementation Phase section is included for proposal purposes only. The Statement of Work will be further defined during Formulation Phase and negotiations of Implementation Phase.

(b) Implementation Phase (Traditional NASA Phase C/D/E)

(1) Spacecraft

Support the SIM Implementation Phase activities. During the Implementation Phase the S/C effort will include but not necessarily be limited to the following specific tasks:

(A) Detailed Design

(i) Complete detailed design of S/C and lead the S/C Critical Design Review (CDR).

(ii) Participate in the project CDR.

(iii) Maintain the S/C System Specification in cooperation with the other members of the SIM team.

(iv) Maintain S/C system functional requirements.

(v) Finalize external interfaces.

(B) Fabrication, assembly and test of the S/C

(i) Procure or manufacture S/C components.

(ii) Develop and test required flight software.

(iii) Assemble and test the S/C.

(iv) Deliver externally required breadboards, interface development models, engineering models, qualification models to other SIM team members.

(C) Deliver one (1) flight qualified S/C and AHSE to ATLO

(D) Support JPL in the development of the Operations ground system and In-Orbit-Checkout through launch plus 30 days.

(i) Deliver S/C equipment and software that was developed to support subsystem development.

(ii) Support preparation of operations plans.

(iii) Deliver as-built documentation and operating manuals for S/C operations.

(2) PSS Development and Implementation

(A) Flight PSS Design and Development

Support the Implementation Phase SIM activities. During the Implementation Phase the PSS effort will include but not necessarily be limited to the following specific tasks:

(i) Detailed Design

a. Complete detailed design of the PSS consistent with preliminary design guidelines and lead the PSS Critical Design Review (CDR).

b. Participate in the project CDR.

c. Maintain the PSS Specification in cooperation with the other members of the SIM team.

d. Finalize the definition of external interfaces.

(ii) Fabricate, assemble and test the PSS

a. Procure or manufacture PSS components.

b. Develop and test required flight software.

c. Assemble and test the PSS.

d. Deliver externally required breadboards, interface development models, engineering models, qualification models to other SIM team members.

(iii) Deliver one (1) flight qualified PSS to JPL for integration with interferometer.

a. Support the IIP contractor during interferometer instrument integration, test, and launch.

b. Develop and deliver the AHSE needed for the flight PSS.

(3) ATLO Development and Implementation

The SIP Contractor shall participate in the SIM Program as a team member with responsibility for the ATLO. ATLO begins with planning at the time the S/C and the Interferometer instrument are being designed and ends with completion of in-orbit-checkout. As a member of the SIM team, the SIP contractor will work with other SIM team members to define, design, and execute SIM flight system integration and test as follows:

(A) Detailed Design

(i) Complete detailed design of facilities and fixtures.

(ii) Participate in the project CDR.

(iii) Maintain the ATLO Plan in cooperation with the other members of the SIM team.

(iv) Coordinate the development of a system test verification matrix with the SIM team.

(v) Finalize the definition of interfaces and interface control documents.

(vi) Develop required ground software including integration with JPL-supplied Ground System Operations Hardware and Software.

(B) Integrate and Test the SIM Flight system

(i) Coordinate the support and on-site accommodations of resident SIP, IIP and JPL Ground System personnel.

(ii) Lead the ATLO CDR.

(iii) Integrate electronics and cables of the interferometer instruments with the S/C.

(iv) Integrate the S/C with the interferometer instrument.

(v) Test the S/C with interferometer instrument electronics to an appropriate degree as determined by the SIM team during the Formulation Phase.

(vi) Perform functional and environmental tests as specified in the integration and test plan.

(vii) Verify that the Flight system meets the specification defined during the Formulation Phase.

(C) SIM Launch Vehicle (LV) integration

(i) Ship the SIM flight qualified system to the launch facility.

(ii) Integrate the flight system to the launch vehicle

(iii) Lead launch operations.

(D) Support JPL and other team members during In-Orbit-Checkout (IOC) through launch plus 30 days.

(4) S/C Operations Development and Implementation

(A) Detailed Design and Development

(i) Integrate JPL-supplied Ground System Operations Hardware and Software into required SIT support.

(ii) Complete detailed design S/C ground operations center

(iii) Lead Operations CDR

(iv) Participate in the project CDR.

(v) Maintain the S/C Operations Plan in cooperation with the other members of the SIM team.

(vi) Coordinate the development of a system test verification matrix with the SIM team.

(vii) Maintain S/C operations subsystem functional requirements.

(viii) Finalize the definition of interfaces and interface control documents.

(ix) Develop required S/C operations ground software.

(x) Develop a complete S/C Operations center at the SIP facility.

(B) Integrate and Test the S/C Operations Center

(i) Deliver as-built documentation and operating manuals for operations (test data, design description, operating manuals,

calibration procedures, telemetry formats, command dictionary, etc.).

(ii) Staff and coordinate the support and on-site accommodations of necessary personnel for integration and testing of the S/C Operations Center.

(iii) Demonstrate S/C control functionality with appropriate interferometer testbeds

(iv) Verify that the S/C Operations Center meets the specification defined during the Formulation Phase.

(v) Establish operational readiness of the SIM S/C Operations Center and participate in launch and in-orbit-checkout operations to Launch plus 30 days.

(C) Mission Operations

(i) Establish operational readiness of the SIM S/C Operations Center and participate in launch and in-orbit-checkout operations to Launch plus 30 days.

(ii) Staff and operate the S/C Operations Center from launch plus 30 days to the end of mission.

(iii) Monitor performance of the S/C to ensure system health and safety.

(iv) Participate as needed in resolving operational anomalies and changes to the mission plan as dictated by events of the mission.

(v) Support development of detailed operational plans in concert with JPL and other SIM team members for the period from launch plus 30 days to end of mission.

(5) Support Project Teams Planning and Management

For all of the tasks above, the following apply:

(A) Contribute to detailed planning of Formulation and Implementation Phase activities.

(B) Contribute, through the SIM team, to the development of a SIM Project Implementation Plan. This plan will include mutually agreeable project standards for planning, progress monitoring, product assurance, reporting, SIM administration, budget, contingency policy, etc. The plan will be the basis by which the SIM team commits to a SIM which can be implemented within available resources.

(C) Report financial and technical status to JPL and the SIM team.

(D) Submit Contractor Financial Management Report (NASA Form 533Q or equivalent) monthly.

(i) Submit two (2) copies of Subcontracting Report for Individual Subcontracts, Standard Form 294 completed for the prior period.

(ii) Prepare supporting technical and cost material for presentation at NASA and internal project reviews.

(E) Prepare supporting technical and cost material for presentation at NASA and internal project reviews and prepare support material for action items resulting from these reviews.

III. Exhibits

(a) The following Exhibits are hereby incorporated into and made a part of this contract:

Exhibit 1 SIM Reference System Design

Exhibit 2 Integrated Project teams Role Statement During the Formulation Phase, Draft

Exhibit 3 Functionalities of STB-3 and Flight PSS

Exhibit 4 Applicable Documents

1. SIM Science Requirement Document (SRD), Preliminary
2. SIM Project System Requirement Document (PSRD)), Preliminary
3. Instrument System Requirement Document (ISRD), PISRR
4. Spacecraft System Requirement Document (SCSRD), Preliminary
5. Mission System Requirement Document (MSRD), Preliminary
6. SIM Technology Plan

General information regarding SIM and **Exhibit (1) through (4)** are available on the SIM homepage which can be accessed at URL http://sim.jpl.nasa.gov/sim/ Further background information can be obtained from the Origins Program homepage at URL http://origins.jpl.nasa.gov/. **Exhibit (2)** is attached. If requested, Exhibits (1) through (4) hard copy will be mailed out.

(b) JPL will:

1. Review documents and provide comments as appropriate.
2. Lead the SIM management and technical teams
3. Provide **"TBD"** S/C Ground Operations hardware and software.

ARTICLE 2. DELIVERY OR PERFORMANCE SCHEDULE

(a) Except as otherwise provided in this Contract, the point of inspection, acceptance and delivery of all supplies deliverable under this Contract shall be the Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109-8099. All such supplies shall be packaged, packed, boxed, or crated in such a manner as to insure safe delivery and shall be shipped prepaid to JPL.

(b) The Contractor shall furnish and deliver the supplies and perform the services required by ARTICLE 1, STATEMENT OF WORK, in accordance with the following schedule:

A) IIP Work Package, Formulation Phase

	Item	On or Before
(1)	STB-3 Collector Pods as required by Paragraph I.(a) (2) B. a)	March 2000
(2)	STB-3 I&T GSE as required by Paragraph I.(a) (2) B. b)	March 2000
(3)	Preliminary Design of II&T GSE as required by Paragraph I.(a) (2) B. c)	March 2001
(4)	Implementation Phase Implementation Plan as required by Paragraph I.(a) (3) a)	March 2001
(5)	Implementation Phase Cost Proposal as required by Paragraph I.(a) (3) b)	March 2001
(6)	NASA Form 533Q as required by Paragraph I.(a) (4) (C) 1.	Five (5)working days after the end of preceding month
(7)	Standard Form (SF) 294 as required by Paragraph I.(a) (4) (C). 2.	In accordance with the instructions on the back of the form

B) SIP Work Package, Formulation Phase

	Item	On or before
(1)	Trade Studies as required by paragraphs **TBD**	
(2)	S/C functional requirements and System Specification as required by paragraph **TBD**	

(3) Interface definitions.
as required by paragraph **TBD**

(2) STB-3 Precision Structure December 2000
as required by paragraph **TBD**

(3) Flight PSS preliminary design
as required by paragraph **TBD**

(4) S/C preliminary design
as required by paragraph **TBD**

(5) S/C models and/or simulators
as required by paragraph **TBD**

(6) S/C assembly, test and qualification plan.
as required by paragraph **TBD**

(7) S/C Implementation plan
as required by paragraph **TBD**

(8) S/C implementation cost proposal
as required by paragraph **TBD**

(9) STB-3 Functional requirements and specification
as required by paragraph **TBD**

(10) STB-3 Preliminary design
as required by paragraph **TBD**

(11) STB-3 AHSE preliminary design
as required by paragraph **TBD**

(12) STB-3 structure implementation plan
as required by paragraph **TBD**

(13) STB-3 detailed design
as required by paragraph **TBD**

(14) STB-3 structure and S/C simulator .
as required by paragraph **TBD**

(15) Flight PSS preliminary design
as required by paragraph **TBD**

(16) Flight PSS Functional requirements and specification
as required by paragraph **TBD**

(17) Flight PSS AHSE preliminary design
as required by paragraph **TBD**

(18) Flight PSS and S/C simulator .
as required by paragraph **TBD**

(19) Flight PSS assembly, test and qualification plan.
as required by paragraph **TBD**

(20) Flight PSS Implementation plan.
as required by paragraph **TBD**

(21) Flight PSS implementation cost proposal
as required by paragraph **TBD**

(22) Preliminary design for ATLO.
as required by paragraph **TBD**

(23) ATLO test plan.
as required by paragraph **TBD**

(24) ATLO functional requirements
as required by paragraph **TBD**

(25) ATLO Implementation plan
as required by paragraph **TBD**

(26) ATLO Implementation cost proposal
as required by paragraph **TBD**

(27) S/C operational requirements
as required by paragraph **TBD**

(28) Preliminary design for S/C operations
as required by paragraph **TBD**

(29) S/C Operations Center validation and verification
plan as required by paragraph **TBD**

(30) S/C Operations Center System Specification,
equipment list and functional requirements
as required by paragraph **TBD**

(31) S/C Operations Implementation Plan
as required by paragraph **TBD**

(32) S/C Operations Implementation Cost Proposal
as required by paragraph **TBD**

(33) NASA Form 533Q — Five (5)working days after
as required by Paragraph **TBD** — the end of preceding month

(34)	Standard Form (SF) 294 as required by Paragraph **TBD**	In accordance with the instructions on the back of the form

(c) The Contractor shall furnish the Contracting Officer (CO) with the annual and final reports of reportable items described in the Article entitled "New Technology." Copies of transmittal letters for those reports shall be sent to the JPL Office of Patents and New Technology (OPANT) and to the cognizant JPL negotiator.

OR

The Contractor shall provide the Contracting Officer (CO) the annual and final reports of subject inventions described in the Article entitled "Patent Rights - Retention by the Contractor (Short Form)." Copies of transmittal letters shall be sent to the JPL Office of Patents and New Technology (OPANT) and to the cognizant JPL negotiator.

ARTICLE 3. ALLOWABLE COSTS, INCENTIVE FEE AND PAYMENT

(a) **Estimated Cost and Incentive Fee.**

Estimated Cost:$ TBD
Incentive Fee: $ TBD
Total: $ TBD

Subject to any equitable adjustment which is otherwise provided for under the provisions of this Contract, the incentive fee stated above shall remain constant for the performance of the work under this Contract. There shall be no adjustment in the amount of incentive fee or any claim for increased incentive fee because of errors or omissions made in computing the estimated cost or the fact that the actual cost varies from the estimated cost.

The total amount allotted to this Contract is $ **"TBD".**

(b) **Precontract Costs**. There shall be no allowance for costs incurred prior to the date of this Contract. If this Definitive Contract has been preceded by a Letter Contract, the phrase "date of this Contract" as used in this paragraph (b) shall mean the effective date of the Letter Contract.

(c) **Payment of Incentive Fee.** The incentive fee payable under this contract shall be paid as a one (1) time lump sum only after successful completion of the government Non-Advocate Review (NAR) as defined NPG 7120. 5A. The contractor shall submit a separate NAR incentive fee invoice that shall be approved by JPL. In the event of project cancellation prior to the NAR, the incentive fee will be replace by a fixed fee in the amount of **TBD**.

(d) **Invoices**. Invoices shall be submitted, in triplicate, to JPL Accounts Payable, 4800 Oak Grove Drive, Pasadena, California 91109.

(e) **Allowable Costs**. For the purpose of determining the amounts payable to the Contractor under this Contract, the allowability of costs shall be determined in accordance with the "Allowable Cost and Payment" Article of this Contract; provided, however, that in determining the allowability of costs, the advance understandings, if any, on particular items of cost set forth below shall be given effect. In the event of any inconsistency between such advance understandings and the cost principles referred to in the "Allowable Cost and Payment" Article referenced above, the cost principles shall prevail.

(1) Direct Costs.

No advance understandings.

(2) Indirect Costs (Overhead). Final indirect cost rates shall be established pursuant to the General Provision entitled "Allowable Cost and Payment."

ARTICLE 4. OPTION

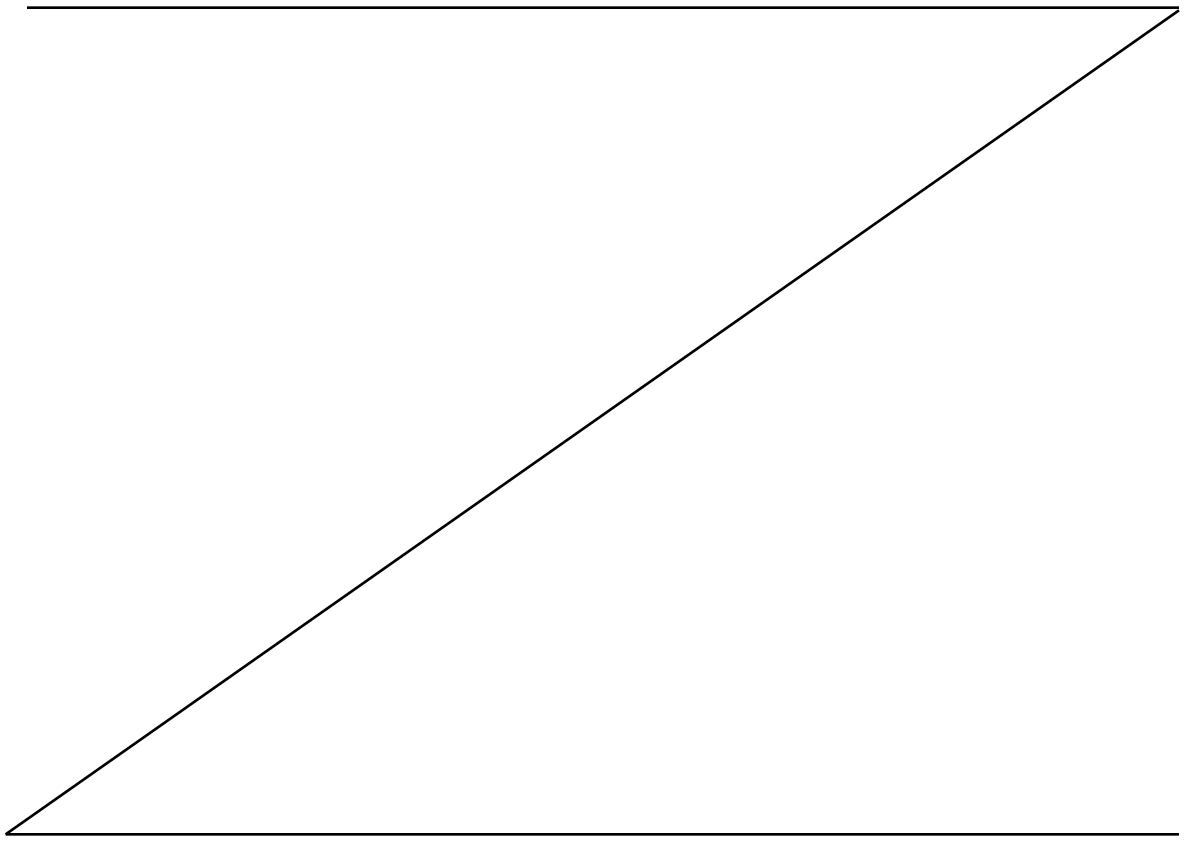
(a) JPL intends to negotiate a Cost Plus Incentive/Award Fee Contract Modification or New Contract and provide Contractor(s) authorization to proceed as a team member(s) in the Implementation Phase activities for the SIM Project provided that the following three (3) conditions are met:

(1) Implementation Phase funds are approved and released by the Government;

(2) The Contractor(s) Formulation Phase Activities demonstrates the technical and programmatic capability to execute the Implementation of the SIM Project within program technical, cost, and schedule constraints, and

(3) The Contractor has demonstrated the capability to perform within a teaming relationship in Formulation Phase and has performed satisfactorily during the previous work effort.

(b) If the above conditions are met, JPL plans to use the documents produced under this Contract as the basis for negotiations for the Implementation Phase of the SIM Project.



ARTICLE 5. SPECIAL PROVISIONS

(a) The Contractor personnel and/or facilities, if any, specified below in paragraph (b) are considered essential to the work being performed hereunder. Prior to removing, replacing, or diverting any of the specified core individuals or facilities, the Contractor shall notify JPL reasonably in advance and shall submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on this Contract. No diversion shall be made by the Contractor without the written consent of JPL; provided, that JPL may ratify in writing the change, and such ratification shall constitute the consent of JPL required by this Article. Paragraph (b) below may, with the consent of the Contracting parties, be amended from time to time during the course of the Contract to either add or delete personnel and/or facilities, as appropriate.

(b) The following Contractor personnel shall be considered Key Personnel under this Contract:

Name	Percentage of Time Assigned to this Contract
TBD	TBD

(c) Contractor personnel shall report to the JPL Security Group Office for

(i) check-in processing before commencing work and

(ii) check-out processing when terminating. Separation check-out will include the return of all Government property and badges, documents, and tools which may have been provided by JPL during each individual's performance under this Contract.

(d) If two (2)contractors are selected as Industry Partners, JPL encourages them to form teaming agreements between themselves to define their interactions in the teaming environment.

ARTICLE 6. ALTERATIONS IN THIS CONTRACT

The following alterations have been made in the provisions of this Contract:

(a) Delete the General Provision of this Contract entitled "Report on Subcontracts," it its entirety.

(b) Paragraph (g)(2) is added to the Article of this Contract entitled, "Rights in Data - General," as follows:

(2) Notwithstanding paragraph (g)(1) of this Article, the Contract may identify and specify the delivery of limited rights data, or JPL or the Contracting Officer may require by written request the delivery of limited rights data that has been withheld or would otherwise be withholdable. If delivery of such data is so required, the Contractor may affix the following "Limited Rights Notice" to the data and the Institute and the Government will thereafter treat the data, subject to the provisions of paragraph (e) and (f) of this Article, in accordance with such Notice:

LIMITED RIGHTS NOTICE

(a) These data are submitted with limited rights under the Government contract No. NAS7-1260 (and JPL subcontract No. _____). These data may be reproduced and used by the Institute or the Government with the express limitation that they will not, without written permission of the Contractor, be used for purposes of manufacture nor disclosed outside the Institute or the Government; except that the Institute or the Government may disclose these data outside the Institute or the Government for the following purposes, if any, provided that the Institute or the Government make such disclosure subject to prohibition against further use and disclosure:

(1) Use by support service contractors.

(2) (Reserved)

(b) This Notice shall be marked on any reproduction of these data, in whole or in part.

(end of notice)

(c) Paragraphs (g)(3)(A) -(C) are added to the Article of this Contract entitled "Rights in Data-General," as follows:

(A) Notwithstanding paragraph (g)(1) of this Article, the Contract may identify and specify the delivery of restricted computer software, or JPL or the Contracting Officer may require by written request the delivery of restricted computer software that has been withheld or would otherwise be withholdable. If delivery of such computer software is so required, the Contractor may affix the following "Restricted Rights Notice" to the

computer software and the Institute and the Government will thereafter treat the computer software, subject to the provisions of paragraphs (e) and (f) of this Article, in accordance with the Notice:

RESTRICTED RIGHTS NOTICE

(a) This computer software is submitted with restricted rights under Government contract No. NAS7-1260 (and JPL subcontract No. _____). It may not be used, reproduced, or disclosed by the Institute or the Government except as provided in paragraph (b) of this Notice or as otherwise expressly stated in the Contract.

(b) This computer software may be:

(1) Used or copied for use in or with the computer or computers for which it was acquired, including use at any Institute or Government installation to which such computer or computers may be transferred;

(2) Used or copied for use in a backup computer if any computer for which it was acquired is inoperative;

(3) Reproduced for safekeeping (archives) or backup purposes;

(4) Modified, adapted, or combined with other computer software, provided that the modified, combined, or adapted portions of the derivative software incorporating restricted computer software are made subject to the same restricted rights;

(5) Disclosed to and reproduced for use by support service contractors in accordance with subparagraphs (b)(1) through (4) of this Article, provided the Institute or the Government makes such disclosure or reproduction subject to these restricted rights; and

(6) Used or copied for use in or transferred to a replacement computer.

(c) Notwithstanding the foregoing, if this computer software is published copyrighted computer software, it is licensed to the Institute and the Government, without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this Article.

(d) Any other rights or limitations regarding the use, duplication, or disclosure of this computer software are to be expressly stated in, or incorporated in, the Contract.

(e) This Notice shall be marked on any reproduction of this computer software, in whole or in part.

(end of notice)

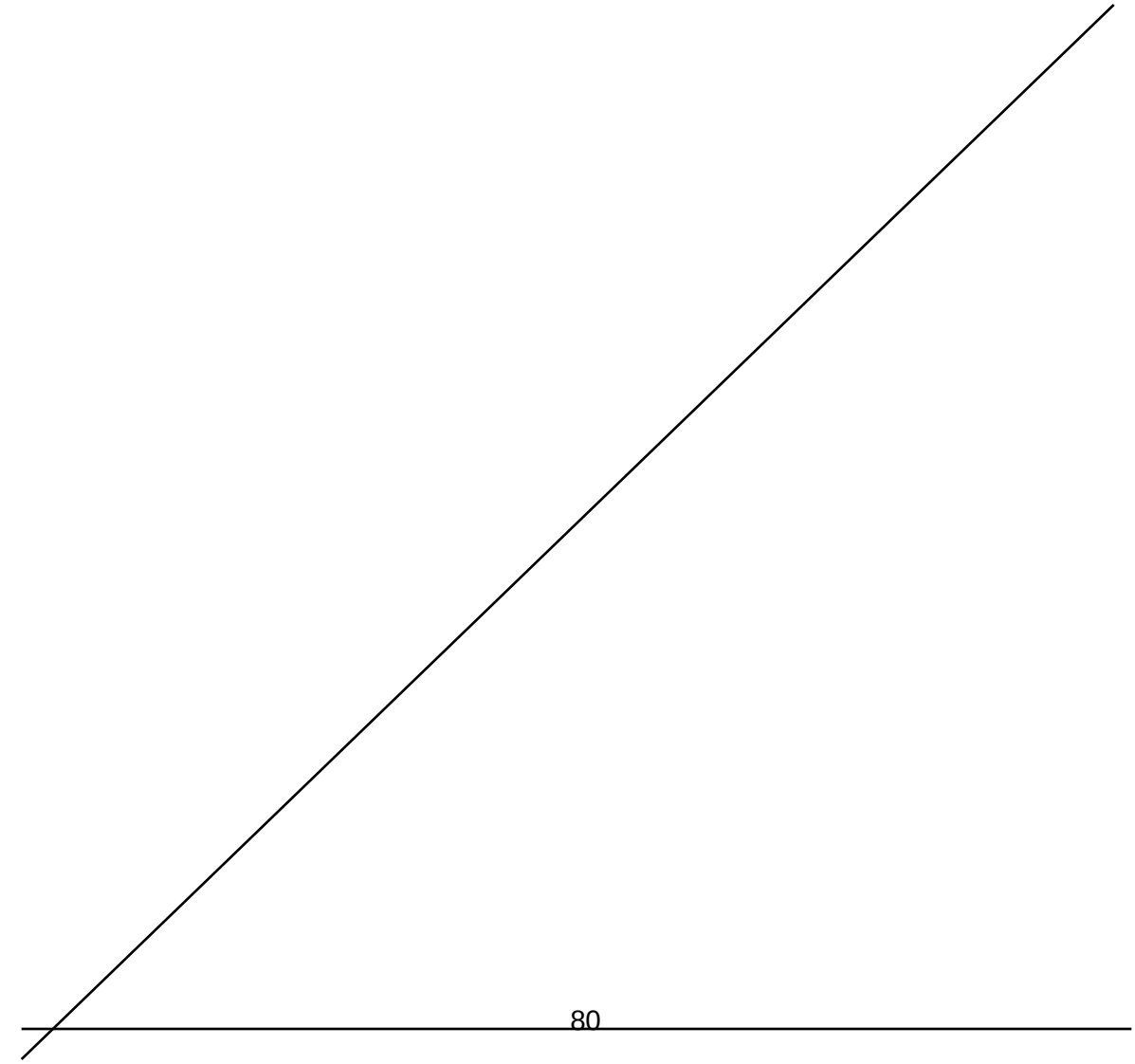
(B) Where it is impractical to include the Restricted Rights Notice on restricted computer software, the following short-form Notice may be used in lieu thereof:

RESTRICTED RIGHTS NOTICE - SHORT FORM

Use, reproduction, or disclosure is subject to restrictions set forth in Contract No. NAS7-1260 (and subcontract No. _____ with [*name of subcontractor*]).

(end of notice)

(C) If restricted computer software is delivered with the copyright notice of 17 U.S.C. 401, it will be presumed to be published copyrighted computer software licensed to the Institute and the Government without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this Article, unless the Contractor includes the following statement with such copyright notice: "Unpublished - rights reserved under the Copyright Laws of the United States."



IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the day and year first above written.

CALIFORNIA INSTITUTE OF TECHNOLOGY

By_____

_____

By_____

_____
(Typed Name)

_____
(Title)

Instructions to Contractor: Do not insert date on Preamble page.

INTEGRATED *PROJECT TEAMS ROLE STATEMENT* DURING THE FORMULATION PHASE
(DRAFT)

1. CHARTER AND COMPOSITION

The integrated Project teams are chartered to accomplish the goals of the Space Interferometry Mission (SIM) Project at the **lowest possible cost** using the capabilities of the team members. The teams will be composed of team members from the Industry Partners (SIP and IIP), , the Mission Operations System, the Science Working Group (SWG)/Science team, and the SIM Project staff. The teams will form the focal point for management and technical definition activities of the SIM Project. The activities associated with the Formulation Phase of the contract period will include:

1. determination and mitigation of related technology risks.

2. Preparation for the System Requirements Review (SRR).

3. Preliminary l design of the SIM consistent with the requirements

4. Development of the STB-3

5. Preparation for the Preliminary Design Review (PDR).

6. Preparation for the Non Advocate Review (NAR) per NPG: 7120

Note To Proposer: In the following material, any reference to Implementation Phase is for information only.

During the Implementation Phase, the teams will continue in operation to assure the integrity of the functional capabilities of the SIM and support of Critical Design Review (CDR). The integrated Project teams will consist of three specific team as follow:

1. Integrated Management Team (IMT) will be a JPL led (Project Manger) team of senior managers from JPL, SIP, and IIP with commitment authority.

2. Integrated Project Engineering Team (IPET) will be a JPL led (Project System Engineer) team of senior technical personnel from JPL, SIP, and IIP

3. Instrument System Engineering Team (ISET) will be a JPL led (Instrument System Engineer) team of senior technical personnel from JPL, SIP, and IIP

4. Spacecraft System Engineering Team (SSET) will be a SIP led (Spacecraft System Engineer) team of senior technical personnel from SIP, JPL, and IIP

5. Mission System Engineering Team (MSET) will be a JPL led (Mission System Engineer) team of senior technical personnel from JPL, SIP, and IIP.

6. Integrated Mission Management and Engineering Team (IMMET) will be a JPL led team (formed after launch from above teams) of senior technical personnel from JPL, SIP, and IIP. The IMMET will be the only team during post launch period.

2. ORGANIZATION AND OPERATION

Because of the many technical trade issues associated with the designs for the Interferometer Instrument System (IIS), Spacecraft (S/C), GSE, and scientific utilization of the Mission, we currently envision the technical teams as having a small collocated core team (located at JPL) during the Formulation (and Pre-Launch Implementation Phase) Phase. The remainder of the technical teams will be located at the various home institutions. The core team will identify issues requiring analysis, and coordinate the supporting analysis performed by the teams at the home institutions. The results of these analyses will be shared and discussed with other members in order to converge on a design for SIM that meets the requirements, and can be accomplished within the resource constraints of the Project.

In order to enable the teams at the home institutions to interact with each other and with the collocated core team, we envision an electronic infrastructure to facilitate communication and the exchange of drawings, data files, and analysis results. An initial operating capability will be put in place by the time the industry team members are selected, but the remainder of the infrastructure will be developed in consultation with the industry team.

We envision that each day during the Formulation Phase collocated period, contacts will be made via the electronic infrastructure with remote team members to permit dialog on ongoing analyses.

The teams will take on an adaptive mode of operation, meeting at various locations to work outstanding issues. Daily interaction between teams and their home institution teams will be accomplished via the electronic infrastructure. The Formulation Phase will end with the successful completion of the NAR/PDR.

After NAR/PDR, the teams will continue to facilitate management and technical interaction between the team members to work any outstanding design issues with implications for functional capability of SIM, and will provide a forum for resolution of interface issues.

3. DESIGN-TO-COST PARADIGM

The teams will operate in a design-to-cost paradigm where the development cost of each element must be kept current as the Mission and functional design evolve. It will be the responsibility of each team member with product deliverable responsibility to support the design process with cost estimates of sufficiently high confidence that the team can arrive at a design that can be developed within the Project's resource constraints.

4. TASK ROLES AND RESPONSIBILITIES DURING THE FORMULATION AND IMPLEMENTATION, PHASES

The Tables 1, 2, and 3 define the roles and responsibilities of JPL and each Industry Partner over the various phases of the Project.

Table 1.0 Formulation Phase Responsibility Allocation

Formulation Phase Tasks	JPL	IIP	SIP
Integrated Management Team (IMT)	Lead	Support	Support
Integrated Project Engineering Team (IPET)	Lead	Support	Support
Instrument System Engineering Team (ISET)	Lead	Support	Support
S/C System Engineering Team (SSET)	Support	Support	Lead
Mission System Engineering Team (MSET)	Lead	Support	Support
Instrument System (IIS) S/W	Lead	Support	Support
STB-3 Collector Pod Build & Test	Support	Lead *	Support
STB-3 Combiner Pod Build & Test	Lead	Support	Support
STB-3 Structure & Cabling Build & Test	Support	Support	Lead
STB-3 GSE Build & Test	Support	Lead *	Support
STB-3 Facility	Lead	Support	Support
STB-3 I&T	Lead	Support	Support
Project Level Reviews	Lead	Support	Support

* Some GFE, depending upon Contract award date

Table 2.0 Implementation Phase Pre-Launch Responsibility Allocation

Implementation Phase Development Tasks	JPL	IIP	SIP
Integrated Management Team (IMT)	Lead	Support	Support
Integrated Project Engineering Team (IPET)	Lead	Support	Support
Instrument System Engineering Team (ISET)	Lead	Support	Support
S/C System Engineering Team (SSET)	Support	Support	Lead
Mission System Engineering Team (MSET)	Lead	Support	Support
Instrument System (IIS) S/W	Lead	Support	Support
IIS Collector Pod Build & Test	Support	Lead	Support
IIS Combiner Pod Build & Test	Support	Lead	Support
IIS Structure & Cabling Build & Test	Support	Support	Lead
IIS GSE Build & Test	Support	Lead	Support
IIS I&T Facility	Support	Lead	Support
IIS I&T	Support	Lead	Support
S/C Build & Test	Support	Support	Lead
ATLO	Support	Support	Lead
IIS Mission Operation H/W & S/W	Support	Lead	Support
S/C Mission Operation H/W & S/W	Support	Support	Lead
Science Mission Operation H/W & S/W	Lead	Support	Support
Science Data Center	Lead	Support	Support
Project Level Reviews	Lead	Support	Support

Table 3.0 Implementation Phase Post Launch Responsibility Allocation

Implementation Phase Operation Tasks	JPL	IIP	SIP
Integrated Mission Management & Engineering Team (IMMET)	Lead	Support	Support
IIS Operation	Support	Lead	Support
S/C System Operation	Support	Support	Lead
STB-3 Operation and Maintenance	Lead	Support	Support
Science Data Center Operation	Lead	Support	Support

5. Responsibilities OF EACH TEAM DURING THE FORMULATION PHASE

JPL will lead the management (IMT) and two technical teams (IPET and ISET) –as the functional design is developed, and will assure that the design meets the Level 1 requirements, and is compatible with the Ground System (GS) design and the Mission design while the integrity of the budget profile is maintained.

1. The IMT will be responsible for the development and maintenance of all the plans in this phase while working with the technical teams to ensure the achievement of all Project objectives within the constraints of cost environment. IMT will also manage conflict resolution, risk, and reserves.

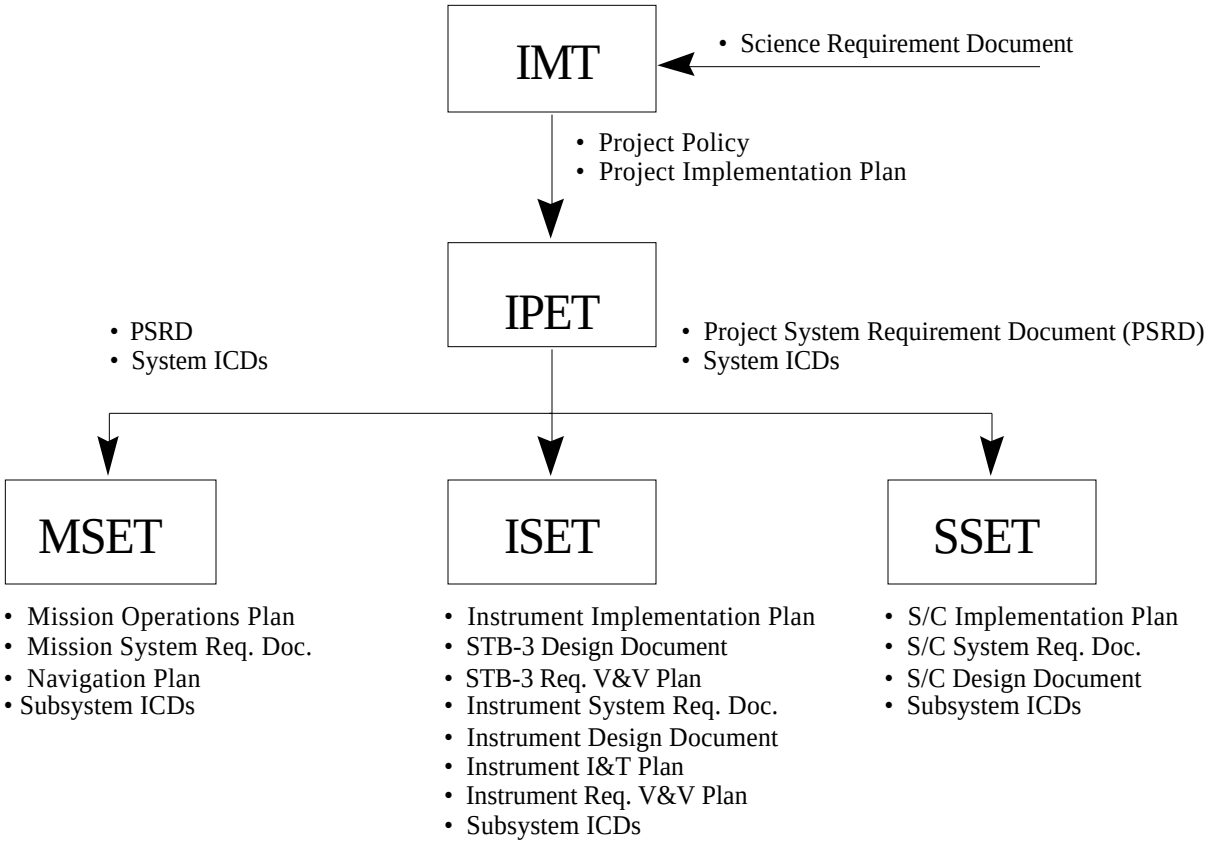
2. The IPET will be responsible the System Engineering and design activities of system elements across the Project. The Project Systems include:

   a) Instrument
   b) Spacecraft
   c) ATLO
   d) Mission
   e) (Science Data Center)

1. The ISET is responsible for the System Engineering and design activities of the subsystem elements across the Instrument System. The Instrument Subsystems include:

   c) Collector Pod
   d) Combiner Pod
   e) Precision Structure
   f) Real Time Control (H/W & S/W)
   g) Integration & Test

6. REPRESENTATIVE RECEIVABLE AND DELIVERABLES FROM THE TEAMS DURING THE FORMULATION PHASE



(c) JPL will:

1. Review documents and provide comments, as appropriate.
2. Provide payload instruments and a Clone of the Ground System Operations Hardware and Software as Government-Furnished Property.
3. Provide **"TBD"** hardware, software and data agreed to by the IPET.
4. Lead the IPET.

IV. ACRONYMS

AHSE	Assembly and Handling Support Equipment
ATLO	Assembly, Test, Launch Operations
BOE	Basis of Estimate
CDR	Critical Design Review
CO	Contracting Officer
CT	Core Team
ECR	Engineering Change Review
G&A	General and Administrative
GFE	Government Furnished Equipment
GSE	Ground Support Equipment
H/W	Hardware
I&T	Integration and Test
IIP	Instrument Industry Partner
IIS	Interferometer Instrument System
IMMET	Integrated Mission Management Engineering Team
IMT	Integrated Management Team
IPET	Integrated Project Engineering Team
ISET	Instrument System Engineering Team
ITP	Interferometer Technology Program
JPL	Jet Propulsion Laboratory
LV	Launch Vehicle
MSET	Mission System Engineering Team
NAR	Non-Advocate Review
OPANT	Office of Patents and New Technology
OPC	In Orbit Checkout
PDR	Preliminary Design Review
PFR	Problem and Failure Report
PSS	Precision Structure Subsystem
RFP	Request for Proposal
S/C	Spacecraft
S/W	Software
SF	Standard Form
SIM	Space Interferometry Mission
SIP	Spacecraft Industry Partner
SRD	Science Requirement Document
SSET	Spacecraft System Engineering Team
STB-3	SIM Testbed-3
SWG	Science Working Group
V&V	Verification and Validation
WP	Work Package